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TOWARD A PHILOSOPHY OF PLANNING: ATTITUDES OF FEDERAL WATER PLANNERS

STANFORD UNIVERSITY

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Toward a Philosophy of Planning: Attitudes of Federal Water Planners

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~~Summarizes~~ interviews were conducted with 70 planners from federal water resources agencies to determine their attitudes toward planning objectives, their personal role in planning, the social-political structure, time, and the environment. Responses of the planners are summarized and compared with views of others on the proper role of the planner in the planning process. Some conclusions as to methods in improving the planning process are presented. (Linsley—Stanford)

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TOWARD A PHILOSOPHY OF PLANNING:
ATTITUDES OF FEDERAL WATER PLANNERS

by

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ABSTRACT

The study was made to examine the attitudes, opinions, and perceptions of field level planners and their supervisors in the U.S. Army Corps of Engineers, the Bureau of Reclamation and the Federal Water Quality Administration (now Environmental Protection Agency). It is held that field planners can largely determine the direction of agency plans. Because many planning decisions are subjective, planners' attitudes may strongly influence their judgement. Existing knowledge of attitudes at this level is limited, and the study helps to explain some of the reasons for the current pattern of federal water management and identifies areas where changes in policy and planning practices may be needed.

An interview survey of 70 planners (GS-11 to 15) was conducted. Offices were chosen to ensure a wide coverage of hydrologic regions and management tasks. Each interview was conducted by a team of two researchers. Attitudes toward planning objectives, personal role, the social-political structure, time and the environment were explored. Results of the interviews are summarized and discussed in relation to accepted concepts of the planners' role.

This report was submitted in fulfillment of Research Grant No. 16110 DWX under the partial sponsorship of the Office of Research and Monitoring, Environmental Protection Agency.

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PREFACE

In the fall of 1969 the Program in Engineering-Economic Planning of the Department of Civil Engineering, Stanford University, received a grant from the Federal Water Quality Control Administration for a study of "The Philosophy of Water Quality Control Planning." Principal investigators were Professor Ray K. Linsley, and Assistant Professor Gene E. Willeke. The term of the grant was from October 1969 to October 1970. It was subsequently extended through March, 1971.

The purpose of the grant was to explore the role of individual attitudes in the planning process. It was felt that the personal attitudes of planners must have a significant effect on the plans which they produce. The plan of activity for the grant involved two main efforts. The first was a seminar on the philosophy of planning, designed to improve the education of young engineers for the planning profession by giving them an understanding of their own attitudes as they might influence planning. The second main effort was a series of exploratory studies to determine the attitudes of practicing planners in the water resources area and the influence of these attitudes on planning.

Some Thoughts on the Philosophy of Planning

Why is one concerned with the philosophy of planning? Precisely because the attitudes toward planning, planners, and plans change and planners, of all people, should be alert to these changes. Indeed, planners should lead such changes which are, after all, expressions of a search for improved planning. As a conceptual background to the project the following paragraphs sketch the views of the principal investigators.

Our proposed philosophy of water resources planning can be illustrated by a comparison with our conception of the philosophy of water planning in the past.

In the past, water planning was conceived as proceeding from a clear set of objectives (often only one objective). There was a close parallel with design and deterministic design at that. It was believed that there was a right solution (Irving Fox has made this same point in an address to the Interstate Conference on Water Problems, Feb. 2-4, 1971)--later called an optimal solution--and that one could talk about the benefits and the costs. Planning was a well-defined problem.

The emphasis in this type of planning was on the preliminary design of physical facilities. Some attention was given to economic analysis--though primarily for purposes of justification rather than project formulation. Almost no attention was given to financial analysis. This was a task for others. Legal analysis was minimal, limited to that required to locate and cite legal authority and, if necessary, to suggest new legislation.

Problems of the environment were definitely secondary, if they were considered at all. In the early days of irrigation planning, even such direct environmental problems as drainage facilities were neglected, to be provided at a later date in the context of a "new problem

The phrase "benefits to whomsoever they may accrue" was a significant facet of water planning in the past. One result of such planning was the ommission of any reference to the groups or individuals who did incur costs or to whom benefits accrued.

Elitism was the rule in planning. Members of the lay public were considered ignorant, uninformed, and as having no standing to participate in planning.

Projections were made without regard for contingencies. The idea of water planning as embodying self-fulfilling prophecies was not often considered. When it was considered, the water plan was seen as being part of a plan under divine guidance, e.g., if a large population increase were expected in southern California, the thought of not providing water to this expanded population was considered immoral and outside the realm of planning.

Planning took place within rigidly defined boundaries, often a river basin. What took place outside that boundary was external to the problem. Implicitly, the assumption of a river basin boundary limited planning to "water" planning. Land use planning, recreational planning, agricultural planning were excluded or, more properly, not included.

Many of the failings of water planning in the past can perhaps best be described as falling in the category of non-decisions. Because of the philosophic base for planning, the concepts, attitudes, and methodologies for planning were such that public participation in planning did not occur to planners as a consideration. Only after great pressures developed within society did public participation become an issue upon which a decision could be made.

By contrast with the philosophy of the past, a number of characteristics are prevalent in present-day thinking about planning.

The planner should no longer assume the problems and needs are known. A significant part of his work is expected to be given to problem definition and clarification. He starts out by considering the entire planning process as an ill-defined problem.

The planner is expected to establish the goals, objectives, needs and desires of the society in an iterative process. In this process, the society is not presumed to be capable of articulating their goals, etc. at the beginning of the planning process. They are presumed to have a role in formulating goals, objectives, etc. in conjunction with the planner. The planner is expected to provide structures by means of which this can take place. He is expected to help clarify and articulate. He is expected to explain the consequences of a particular set of objectives. He is expected to search out needs, both present and future.

The planner is expected to formulate alternative ways of meeting objectives. These alternatives are not at all limited to physical structures. They are as likely to be financial, legal, economic, or social alternatives as they are to be physical structures.

The alternatives suggested by the planner or by others will have somewhat different consequences, both positive and negative. The planner is expected to specify the effects of each alternative, preferably from the viewpoint of each affected group.

In addition to specifying the effects of these alternatives, the planner is expected to weigh and compare these alternatives from various viewpoints.

The technical work of the planner is somewhat similar to that of the planner in past years. He still does projections, economic and financial analysis, and perhaps even some engineering design. However, the differences lie in why they are done and how they are done. Economic analysis would be concerned not only with economic efficiency but also with equity. Financial analysis would be an explicit part of the planning effort rather than an adjunct task performed after the planning work had been done. Engineering design would tend to be employed to establish technical feasibility. If the cost of a dam and reservoir could be estimated without performing a preliminary design, costs derived in this alternative manner would be used in the early economic analysis rather than expending time or money on a preliminary design.

The time frame for planning has also changed. More accurately, the whole concept of time frame is changed. Whereas a water planner in the past might establish a time period of 50 years for his work, a planner today would be expected to consider the entire time continuum beginning now and looking forward. Present issues must be considered as well as those 1, 5, 10, 20, 50, or 100 years hence. Problems of water pollution and wild rivers exemplify this continuum. Planning for water pollution control must start with present conditions but must also look some distance into the future. Wild river planning must consider present day issues as well as the concerns of populations who may live several centuries hence.

A task that is now part of the planner's set of responsibilities is locating the decision-makers. Although a planner is always employed by someone, the employer is not always, indeed not often, the decision-maker for whom planning is done. Plans are implemented by other agencies, other jurisdictions, private interests, etc. Thus, planning for implementation is part of the planner's job, and locating the decision-maker(s) is part of planning for implementation.

THE SEMINAR

In their original project proposal, the principal investigators had felt that a seminar on the "Philosophy of Planning" might:

- Isolate the principal relevant attitude dimensions important in planning.
- Formulate possible attitude positions that might be held by planners.
- Discuss the consequences for planning of holding particular positions.
- Help formulate an interview schedule for the nationwide survey of planners.
- Lead to a better understanding of the importance of attitudes in planning.

Speakers

During the year, five outside speakers were asked to address the group and engage in dialogue on planning philosophy. These speakers were:

Mrs. Joyce Tavrow, a representative of the League of Women Voters, who was invited to speak about the activities of the League as they pertained to water planning and management. This topic related primarily to the issue of citizen participation in the planning process.

Mr. James Russell, of the Federal Water Quality Administration, who was invited to speak on his planning experience with particular emphasis on interagency relations.

Mr. Harvey Banks, a private consultant and former director of the California Department of Water Resources, discussed various aspects of the planning leading up to the California Water Project as well as several other major planning projects currently underway.

Mr. Jerome Gilbert, Executive Director of the California Water Resources Control Board, directed his presentation toward problems in water quality planning, emphasizing the relations between an administrative agency, the legislature, and local jurisdictions.

Mr. Robert Eiland, Assistant Director of the California Department of Water Resources, discussed the training received on-the-job by planners and how this has changed over the years. He also addressed himself to the day-to-day problems of a political nature faced by a planning agency.

During Winter Quarter, another seminar, the Water Resources Seminar, brought in speakers from local government, consulting firms, and conservation groups. Although this seminar was not formally part of the Philosophy of Water Planning seminar, many of the students attended both seminars and the subject matters overlapped. Thus, the Philosophy of Water Planning seminar had the benefit of a larger number of outside speakers than is evident from the five listed above.

In their original concept of the seminar the principal investigators had imagined a reasonably structured plan in which during the first quarter relevant attitude dimensions for planners would be identified and a scale of attitudes for each dimension developed. In the second quarter it was planned that visiting speakers would comment on these dimensions and their scales and suggest from their viewpoint the ideal attitudes for a planner on each dimension. The last quarter was viewed as a consolidation of the opinions of the outside speakers, faculty, and students into a discussion of the "ideal planner" in terms of his attitudes.

The actual seminar departed substantially from this plan. It immediately became evident that individual student participants had not really thought very much about attitudes and much of the first quarter was devoted to discussions aimed at clarifying the concept of attitudes and in particular separating the concepts of personal attitudes from the constraints, methodologies, and procedures of planning. At the outset many students had difficulties separating, for example, the procedures involved in benefit-cost analysis from the attitude of the individual planner regarding economics, beneficiaries, time scale, etc. Early in the seminar the students were asked to take two simple attitude tests to help illustrate the concept of attitude.

As the seminar proceeded it became apparent that it would not be practical to define "the ideal planner" within the seminar. It was possible to achieve some general concensus on the dimensions of attitudes which might be relevant (Fig. 1), but to attach any scale to these attitudes in the seminar including 20 or 30 students was a practical impossibility. This is no reflection on the students but simply a realization of the fact that a large committee cannot reach a meaningful concensus on such abstract concepts as attitudes.

For much the same reason outside speakers were not able to speak directly to the attitudes dimensions outlined by the seminar. These speakers had generally not given much thought to the basic issue of attitudes and it was not practical to provide them with preparatory material which defined these abstract concepts sufficiently so as to give them a standard benchmark on which to base their comments. In all cases the outside speakers gave the students significant insight into attitudes which could have been attained in no other way, but in no sense were either students or speakers able to set forth a list of attitude dimensions appropriately scaled to define the ideal planner.

As a result of the seminar the student participants were required to think about their own personal attitudes as related to their chosen profession. They now understand that these attitudes will influence their planning and differences of opinion between themselves and other planners or their public will in large measure be traced to differences in attitude. Since attitudes can be changed, it is hoped that this exposure will lead to improved planning and less unnecessary conflict between planners and their clients.

FIGURE 1

IMPORTANT ATTITUDE DIMENSIONS FOR PLANNING

Attitudes toward

	MAN				NATURE	TIME
Goals	Responsibilities		Constraints			
	Vertical	Horizontal	Planning	Planner		
National Goals The General Welfare	Public Government Supervisors Federalism Regulations Decision Makers	Other Disciplines Agencies Society	Technology Economics Money Conflict Peers Communication	Knowledge Conviction Self	Nature Locality Water Pollution	Urgency Innovation Future Change

PLANNERS AND THEIR ATTITUDES

Approximately seventy planners from the Corps of Engineers, Bureau of Reclamation and Federal Water Quality Administration were interviewed by Mr. Ray Wilson and Mr. Richard McDonald as part of the study of the Philosophy of Planning. The carefully structured interviews averaged two hours and probed deeply into the attitudes of planners. Selection of interviewees was designed to sample geographically throughout the country, and to sample through the range of planners--GS-11 to 15.

The report which follows represents the results of the analysis of these interviews by Dr. Wilson with respect to planners' attitudes toward goals, nature, the public, and decision makers. The study served as the basis for his dissertation and satisfied part of the requirements for the Ph.D. which he was awarded in June 1971 by Stanford University.

Stanford, California
November 1972

Ray K. Linsley
Gene E. Willeke

CHAPTER I

INTRODUCTION

The study was made to gain a greater insight into the attitudes, opinions and perceptions of field level planners and their immediate supervisors in three federal water resource agencies, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the Federal Water Quality Administration.

The rationale was as follows:

a. The planner, whether he perceives it or not, can materially influence the direction of the planning which passes through his hands.

b. A planner's attitudes provide at least a part of the basis for his reaction to the programs, regulations and needs of his agency, to the needs and desires of the public and to any other external pressures to which he is subject (political demands, peer group standards, etc.). Since much of the field of decision is highly subjective, using qualitative data and analysis, the individual's personal opinions are particularly free to influence his judgment. A knowledge of planners' attitudes could, therefore, explain in part some of the reasons behind the current pattern of Federal water management, and the solutions chosen to solve the problems.

Background

Public works projects are ubiquitous features of today's world. The impact of the planning and construction activities of the many levels of government concerned with urban areas, with transportation and with natural resources, affects the lives of all citizens. They fulfill a wide range of objectives, and their influence cuts across many physical, political, and social boundaries[1].

Many public works are directly or indirectly within the field of responsibility of the federal water resource agencies, through either their planning or construction activities. Their importance is emphasized when it is considered how much of our society depends for its operation and well being on a continued water supply, on the maintenance of navigation facilities, on protection from floods, on a consistently high water quality, and even on the provision of recreation opportunities[2].

The planning of water resource projects is, thus, an extremely responsible task. Given the diverse goals to be met and the many interests to be served, it is also a complex and difficult one. Furthermore, the problems are increasing as demands on limited resources grow, as national priorities are reassessed, and as social norms and beliefs change.

A water resource plan usually describes a system which is intended to solve a specific problem. It should detail the need which gave rise to its existence, the goals which it seeks to fulfill, the criteria by which goal attainment is to be measured, the alternatives considered and the analysis performed on them. It will generally summarize the background information on which the plan is based and will include an economic analysis giving rise to a benefit-cost ratio for the system. It is often assumed that the preferred alternative represents an optimum, but even in strictly technical areas of a plan, this is rarely attainable. However, it is to this end that the techniques of "systems analysis" can be applied to the planning problem.

Many factors--technical, social and philosophical--determine the ultimate form of a recommended plan. Technical problems include the adequacy of the data, the effectiveness of the methodology used in the analysis, the forecasting of future needs, the costs of the system, and the calculation of economic benefits. In none of these areas are the available data and methods wholly adequate. Extensive research into these subjects is under way, and it is conceivable that if all, or even most of the errors from these sources could be identified and their magnitudes estimated or measured, it would be possible to devise a strategy of planning to minimize their effects[3]. At present, however, this type of variance, alone, could lead to totally false conclusions regarding the most desirable alternative.

Assuming a near-perfect analysis of technical factors, there is no guarantee that the selected system would be an optimum one, because of the subjectivity of the social and philosophic aspects of planning.

The socio-political, or external pressures on a planner can act in two opposing ways. In some cases the conflicts between political interests being served, changes in national priorities, the use of multiple objectives, pressures from higher levels of government, the significance of prior decisions and the demands for interagency coordination, all introduce new ambiguities into planning. In other situations these pressures restrict a planner's freedom of choice and may reduce uncertainty. The difficulty is to identify in what situations such external forces cause uncertainty, and when freedom is being restricted. In either case, the effects of these forces are to make the planning task less susceptible to objective criteria and more dependent on the perceptions and subjective analysis of a planner.

The ultimate source of uncertainty in any decision process are those day to day choices (of small import in themselves, but with a large cumulative effect) that are most heavily affected by the planner's experience, attitudes, values and opinions. There are many of these decisions; the selection of objectives and criteria to be used in a particular situation; the initial perception of available alternatives and selection of those to be studied[4]; the amount of data deemed necessary; the type and length of projections used; the depth of analysis given to an alternative; the treatment of non-quantifiable aspects such as environmental preservation, aesthetics, or social effects; how the demands of expediency are handled when deadlines must be met; and many others.

Two points need emphasis. One is that these decisions are closely tied to social-political pressures which may heavily condition the planner's philosophy. His conception of objectives and alternatives may be constrained by his perceptions of the desires of the public, his agency regulations and his loyalty to the principles of his profession. Second, a controlling feature of a planner's behavior is how well he perceives that his work involves all these choices. It could even be postulated that the difficulty of the planning task and the quality of a planner's work are directly related to his perceptions about the extent of his influence, the external pressures under which he works, and his breadth of vision about the impact of his planning.

The assertion that an important aspect of the planning process is a philosophic one provides the rationale for this study. There are several implications of the idea to consider.

(a) It makes a plan far more than just a document which describes a proposed project, and gives the data and reasons behind its choice. To quote Willeke, 1969[5]:

> "A plan should, in the words of Abel Wolman, 'illuminate the alternatives'. It should make it possible for the concerned layman to understand what choices are available and what consequences follow from each choice. This implication is justified on the grounds that laymen--legislators, administrators and members of the public--ultimately adopt and implement plans."

(b) It makes the task of the planner much more difficult because it increases the complexity of his role, taking decisions out of the purely objective area, into the subjective. It also increases his personal responsibility for his work.

> "The life of the planner is rapidly getting more complicated. It is no longer possible to make planning decisions wholly on the basis of simple arithmetic calculations. The planner is being forced to use more judgment, to exercise more imagination in the conception of alternatives, and to be more precise in the reporting of alternatives available. There is no escaping this trend and those who elect a career in planning must accept these facts. Those who find this game too rough had better move over to design where the calculations can provide the answer."[6]

(c) It sets the planner as the major influence on planning. Most studies of planning focus on one of five features; the content of planning (what policies should be sought?); the process of decision-making (is it a systems operation or an incremental process?); the methods used (the use of multiple versus single objectives, the type of hydrologic analysis, the projections, etc.); the agency structure or organization details (methods of control, bureaucratic types, etc.); or the socio-political influences on planning (surveys of public opinion, local influentials, etc.). All of these features are extremely important, but none of them is as central as is the function of the individual planner[7]. In fact, it is his understanding of each of these dimensions which determines the type of planning done.

Few studies have focused directly on the attitudes of the individual planner[8]. The relationship of attitudes to decision-making is poorly defined. Studies by political scientists such as Marshall[9] of engineers involved in natural resources planning have suggested that attitudes have a considerable effect on decision making in planning. Because so little has been done in this field (at least from another engineer's perspective) the work is highly descriptive and exploratory. No attempt to prove or disprove a series of specific hypotheses is made. Rather it is intended to provide a preliminary understanding of existing attitudes, upon which more defined studies can be based.

An ultimate hope is that the dimension of understanding being added here will enable a strategy of planning to be developed which will lead to plans more responsive to the public. An outgrowth of the present study is a series of scales describing certain characteristics of planners. These will be rated by various constituencies of the planner, including his peers. Hopefully, in describing the ideal planner, their concepts of what ideal planning is will come through.

Study Development

A study of the philosophic aspects of planning raised the question of how such a topic should be treated. One possibility would have been to take a theoretical approach, depending heavily on a literature search, case histories of different planning approaches, and psychological studies of the role of the engineer[8] in dealing with issues and in working within an agency structure. The difficulty with this option was that one could completely lose touch with reality, and be simply left with an esoteric exercise.

Another choice was to make a survey of the planners themselves, to discuss how they saw their role, to find out what perceptions and attitudes they have about current issues, and what they feel planning is all about. The major problem here was to determine what subjects were important, so that the questionnaire could be efficiently focused.

The second approach was adopted for three reasons. First, although planning depends on the assumption that planners understand and accept the methods and policies they work with, few studies have been made to test this. Opinion surveys have been used to demonstrate how the public feels about certain aspects of water policy[10], and other studies have shown how politicians and "influentials" view planning's functions and goals. In the same way, the survey approach would give the agencies more information than they presently have about how their policies are perceived and used, and where possible educational efforts, and even policy changes, might be directed.

Secondly, the results may be read by the planners themselves, providing them with information as to how their peers think and act, and where their own philosophy fits in with the views of a sample of their profession. Thus the survey could have an educational impact.

Finally, the idea of talking to the planners was appealing because it would provide the researchers with a direct source of information[12] both about planners and about how planning functions in the field situation. In terms of strictly personal background, this could represent a concentration of practical exposure and experience in different aspects of water resources, unavailable in any other way, except over a number of years of actual planning.

The next problem was to define the range of topics to be covered. To gain as broad in input as possible to this question, and so that purely personal interests would not dominate, a series of seminars[13] in the Engineering-Economic Planning Program at Stanford, over the 1969-70 academic year, were held to discuss the planning process and its philosophic implications[14]. Thirty-five separate attitude objects were suggested as being important[15], falling basically into six categories: attitudes towards individuals or groups in society; attitudes about methods, policies and goals; attitudes about the nature of the issues being faced; conceptions of personal role and goals; and perceptions of the range and type of constraints on planning.

Such a list did very little to restrict the possible scope of a survey of planners' attitudes, because it touched on almost every aspect of the planning process. It was decided, therefore, that an exploratory approach should be adopted which would seek to cover a broad spectrum of planning issues in order to find out which are potentially most important and could deserve further study.

This choice meant that the study would be too large a task for just one researcher. It became necessary to make it a dual project, and it was divided between this author and Richard J. McDonald. A convenient division of the material separates the more abstract aspects of a planner's philosophy, such as his attitudes about his personal role, about nature, about the socio-political environment and about national goals, from the pragmatic details of his job, such as how he functions as a coordinator, how he perceives the effects of different levels of decision makers, how he views and uses criteria such as the benefit cost ratio, what he feels about his agency's rules, constraints, functions, organization, and so on. McDonald examined the organizational aspects of water resources planning. This dissertation will focus on the "philosophic" aspects of planning through a description of planners' attitudes, opinions and believs.

The Nature of Attitudes and the Relationship of Attitudes and Behavior

At the outset, it should be understood that this is not strictly an "attitude" survey. The approach used is exploratory and descriptive, and seeks to investigate attitudes by looking at planners' perceptions of their environment, their opinions and beliefs about various aspects of planning, the pressures they encounter and their personal role. No attempt is made to use the attitude measuring techniques of a Thurston, Guttman, or Likert type scale[16], which provide a comparative measure of direction and relative intensity of feeling about a unidimensional concept.

An attitude is defined as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response (physical and mental) to all objects and situations with which it is related"[17]. Another author describes it as "an implicit, drive-producing response considered socially significant in the individual's society"[18]. It is usually considered as a hypothetical construct which is not directly observed, but is inferred from external behavior or verbal expressions[19]. An opinion, on the other hand, is a belief[20] that an individual holds about some object of his environment. It is relatively free from the emotional, feeling or affective concept that characterizes an attitude. Central to an opinion is the thought, or cognitive concept, which often takes the form of a factual statement concerning the environment[21]. Public opinion polling samples attitudes, some of which are opinions while some are well fixed prejudices, ideologies, beliefs, values and judgments. To distinguish attitudes, information giving a measure of attitude strength is required[22]. Because this study is a preliminary one the terms attitude, opinion and belief are used synonymously. This enables us to explore many diverse, often unrelated concepts to distinguish those attitudes which it could be profitable to pursue with more quantitative analysis methods. Before the unidimensional scales of true attitude measures can be used, the areas to be studied must be well understood.

Attitudes are usually considered as predispositions or anticipatory sets of responses to social stimuli. In other words, they should predict how an individual will behave in a given situation. However, conventional methods of investigating attitudes rarely seek more than verbal responses to symbolic situations[23]. Very few empirical studies of the relationship between attitudes and behavior have actually been performed, and those done suggest that the correspondence is somewhat less than perfect. It is, therefore, dangerous to assume that a knowledge of attitudes is in itself predictive of behavioral consequences in specific situations[24].

A major problem is the lack of instruments and models to adequately account for all the complexities of such relationships[24]. Some explanations of the discrepancies between private beliefs and overt behavior have been reached through application of Festinger's dissonance theory[25]. Another investigation, by Janis and King[26], is noteworthy because it hypothesizes that the direction of causality is not from attitude to action, as is normally assumed, but from action to attitude--"saying is believing".

This is far too complex a subject for much consideration to be given to it here. It is beyond the expertise of the researchers. Thus, the conventional assumption is made, that, by investigating attitudes and opinions, potentials for action and behavior are elucidated. By examining the differences between stated opinions and perceptions of agency policy, and what is apparently happening in the water resource field today, some feeling for the relationship between a planner's opinions and his actions may be arrived at. Some political scientists[27] have claimed that engineers' opinions and beliefs have had a profound effect on public policy in the U.S. It is in this light that this study is made.

However, the warning and problems pointed out above should always be kept in mind.

Aspects of a Philosophy of Planning

An individual's personality and behavior are strongly influenced by the culture he lives in, the situation he confronts at any time, and the role he plays or is expected to play as a member of that system[28]. In the limited aspect of living made up by the work situation of planners, the analogue of personality is their philosophy of planning, and of behavior, is how they carry out their planning task. The planners are influenced by a "culture", represented by the public works arena, the agency and the planning profession. They are susceptible to situation, the area lived in, agency responsibility and the type of projects worked on. They are affected by role expectations, that is, what is expected of planners by the public and the agencies.

In analyzing the relationship of culture and personality, Kluckhohn[29] stated that "there are a limited number of basic human problems for which all peoples, at all times and in all places must find some solution." For planners, the same should hold true and based on the current planning concerns expressed in Chapter II, four problems, or areas of attitude, were chosen as covering most of the fundamental aspects of a philosophy of water resource planning. These are attitudes towards or perceptions of nature and the environment; goals and concepts of personal role; time; and the socio-political or decision-making arena[30]. By deciding to sample only water resource planners the environment surveyed was controlled except for agency and geographic differences, which can be described. Finally, the role expectations of planners (in this case mainly engineers) have been documented in the literature[32]. Thus, the necessary ingredients are available to describe and analyze a philosophy of planning.

NOTES--CHAPTER I

1. A. Bruce Bishop: Socio-Economic and Community Factors in Planning Urban Freeways, Ph.D. dissertation, Engineering-Economic Planning Program Report No. 33, Civil Engineering Department, Stanford University, Oct., 1969, p. 6.

2. Many of these works are planned by states and local government, but few totally avoid federal involvement at some level, such as through financial aid, technical help, fulfillment of federal standards, or simply as part of the overall coordination of government activities.

3. It is this aspect of planning where systems analysis has made, and will continue to make, its most significant impact on the planning process, through its ability to examine a very wide range of quantifiable alternatives and arrive at an optimum.

4. As a single example the classic case is that of the "do nothing" alternative. When it is omitted, as it frequently is, this immediately restricts the ultimate choice to one of the solutions which requires that because the study is made, money will be spent.

5. Gene E. Willeke: From an unpublished background statement to a course entitled, "Water Resource Engineering Seminar", CE 269, October 1969.

6. Ray K. Linsley: Workshop for Water Planners, Alternatives in Water Management, Stanford University and U. S. Army Corps of Engineers, EEP-32, Stanford Univ., Dec., 1968, p. 4.

7. "In the study of organization, the operative employee must be at the focus of attention, for the success of the structure will be judged by his performance within it." Herbert A. Simon: Administrative Behavior, The Free Press, New York, 1957, p. 3.

8. In his study of highway planners, Bishop (op. cit.) touched on this subject. In the urban planning field even more progress is evident. Vincent Buck of the Stanford Political Science Department made a survey of urban planners in the San Francisco Bay area, but as yet this work is incomplete and no findings can be quoted. Psychologists and sociologists have also spent time investigating the attitudes of engineers and professionals, but their interest has been primarily in assessing their role perceptions and relationships with the rest of society, rather than the influence of attitudes on planning policy or the nature of the planning being performed. E.g., Robert Merton: Social Theory and Social Structure, Glencoe Free Press, 1957.
   Kenneth Prandy: Professional Employees--A study of scientists and engineers, Faber and Faber, 1965.
   Robert Perrucci and Joel E. Gerstl: The Engineers and the Social System, Wiley, 1969.

9. Hubert Marshall: "Politics and Efficiency in Water Development", Water Research, ed. Kneese and Smith, Johns Hopkins Press, 1966, pp. 291-310.

10. Examples from Stanford's EEP program alone are:
    Gene E. Willeke: Effects of Water Pollution in San Francisco Bay, Ph.D. dissertation, EEP-29, Stanford Univ. Oct., 1968.
    A. Bruce Bishop: op. cit.

11. Examples are:
    Spenser W. Havelick: Attitudes Held by Water Influencials About Major Obstacles in Establishing Institutional Arrangements in an Urbanized River Basin, Ph.D. dissertation, University of Michigan, 1967.
    Darryl L. Hessel: Water Resource Needs and Problems in Southeastern Michigan--An opinion survey conducted among county supervisors, M.S. thesis, University of Michigan, Dec., 1967.
    Eulau, et al.: City Council Research Project, Institute of Political Studies, Stanford University. Various books and articles under Eulau's name describe the results of these studies.

12. An early decision was that, if the survey route was chosen, it should be conducted personally, because of the highly exploratory nature of its approach.

13. CE 269, Water Resources Planning, Autumn 1969,
    CE 229, The Philosophy of Water Resource Planning, Winter & Spring, 1970.

14. Appendix 1, contains an outline of the intended content of the seminars.

15. A full list of the topics mentioned is also given in Appendix 1.

16. Descriptions of these methods are found in: Martin Fishbein, Readings in Attitude Theory and Measurement, John Wiley & Sons, 1967.
    Jahoda and Warren: Attitudes, Penguin, 1966.

17. Gordon W. Allport: "Attitudes", in E. M. Murchison (ed.), Handbook of Social Psychology, Worcester, Mass., Clark Univ. Press, 1935.

18. Leonard W. Doob: "The Behavior of Attitudes", in Martin Fishbein, op. cit., p. 43.

19. R. N. Sawyer and T. E. Harbaugh: "A Methodology for the Construction of Attitude Measuring Instruments", Water Resources Bull., AWRA, Vol. 6, No. 3, May-June, 1970, pp. 401-402.

20. J. B. Cooper and J. L. McGaugh: "Attitude and Related Concepts", in Jahoda and Warren, *op. cit.*, pp. 26-31. The authors define "a belief" as an attitude which incorporates a large amount of cognitive structuring. Operationally, one has an attitude *toward*, and a belief *in* or *about* a stimulus object.

21. Sawyer and Harbaugh: *op. cit.*, pp. 401-402.

22. Cooper and McGaugh: *op. cit.*, p. 29.

23. Richard T. LaPiere: "Attitudes versus Actions", in Martin Fishbein, *op. cit.*, p. 26.

24. Jahoda and Warren: *op. cit.*, p. 211.

25. R. B. Zajonic: "Balance, Congruity and Dissonance", in Jahoda and Warren, *op. cit.*, p. 261.

26. Irving L. Janis and Bert T. King: "The Influence of Role Playing on Opinion Change", in Jahoda and Warren, *op. cit.*, p. 225.

27. Hubert T. Marshall: *op. cit.*
Also, Arthur A. Maass has made this point in his writings. Notably in *Muddy Waters: The Army Engineers and the Nation's Rivers*, Harvard Univ. Press, 1954.

28. Gordon W. Allport: *Pattern and Growth in Personality*, Holt, Rinehart and Winston, New York, 1961, Chapter 8, p. 186.

29. Florence R. Kluckhohn: "Dominant and Variant Value Orientations", Chapter 21, p. 346, of *Personality in Nature, Society and Culture*, edited by C. Kluckhohn and N. A. Murray, Knopf, 1953.

30. Note that these are areas for description of a philosophy (or personality) of planning. They are not equivalent concepts, thus no attempt can be made to give them a comparative weight in an overall philosophy. This is in contrast to the study of values of Allport, Vernon and Lindzey[31], where six value directions making up dimensions of the personality--theoretical (truth), economic (usefulness), aesthetic (harmony), social (altruistic love), political (power), and religious (unity)--are compared, using a forced choice questionnaire, and are given comparative weights (not along an absolute scale) demonstrating an individual's hierarchy of values or preference system.

    Note also, these dimensions are somewhat parallel to the 5 basic human problems suggested by Kluckhohn--the relationship of man to nature (men or nature dominant); the innate predispositions of man (human nature, motivations); the time dimension (where is the individual's reference state, past or future?); the dominant modality of the relationship of man to other men; and the valued personality type.

31. G. W. Allport, P. E. Vernon, G. Lindzey: A Study of Values, Houghton Mifflin Co., Boston, 1960.

32. R. Merton, etc., *op. cit.*

CHAPTER II

PLANNING

The general nature of the philosophic, and related socio-political aspects of water resource planning has been outlined. The other necessary prelude to a study of planner attitudes is a review of the actual planning process itself, the issues being faced, and some of the changes that are occurring, since these are the basis for determining the direction and scope of the survey.

The Planning Process

There are two limiting models of the decision making process. The more idealistic or theoretical model has been termed the "rational-comprehensive" method. The other, arising as a critique of the first, is more pragmatic and is referred to as the method of "successive limited comparisons" or "incrementalism"[1].

The first step in the rational-comprehensive model, is the establishment of a set of broad, usually long term, goals towards whose fulfillment the planning is to be directed. It is against these ends that the existence of need can be determined, and it is also necessary that there be a set of criteria to measure how well the goals are fulfilled. The goals and criteria are usually set at the very top of, or outside, the agency structure through elected bodies, high-level committees, or presidential commissions, whose choice is legitimated either by their position or expertise[2]. Within this broad framework, both short and long term problems can be investigated, data collected and plans formulated. After a need is identified a series of alternatives to meet the need are analyzed, in terms of how well they meet the goals, and by their impact on the system. The test of a "good" policy is that it can be shown to be the most appropriate means to the desired ends. The analysis is as comprehensive as possible, with all discoverable factors accounted for. Finally, the "optimum" solution is implemented.

This is the "systems" approach. Note that the real decision making is done by the "experts" or professionals since they alone are assumed to have the knowledge and independence necessary for rational choice. When the political arena is given a choice, it involves only a very limited set of structured alternatives[3]. The whole process is aimed at doing things for or to the people who are considered to be incompetent to evaluate or know what is "best" for them and are, hence, only indirectly involved in planning, usually in an informational role.

In the past such planning has been viewed as being a one-time function. That is, once a plan was produced, everything afterwards was measured in terms of the original. Now, the concept is that planning is a continuing process and the plan is seen as a flexible guide to policy. This is necessary because goals often change, predictions of the future and data are found to be wrong

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and new values, opportunites and unforeseen side effects turn up[4]. Downs[5], gives a complete summarization of the iterative search and decision process, with its feedback systems, data inputs, etc.

Reality has never approached this ideal, except in very limited cases. There is a wide disparity between the traditional notions of rationality and the social-political processes by which policies are chosen. But more fundamental criticisms exist, and out of them the incremental approach was formulated.

Banfield, 1965[6], gives four reasons for the impracticality of the rational-comprehensive model: an inability to predict the future beyond five years; an inability to determine community goals on which all can agree; the decentralized character of the U.S. political system; and a lack of knowledge of effective means to achieve goals. Braybooke and Lindblom, 1963[7], have a slightly different list. They cite man's limited problem solving capabilities; the lack of comprehensive information; the cost of comprehensive analysis; problems of fact, values and goals; the openness of systems of variables; and the analyst's need for strategic sequences of analytic moves.

The alternative treats decision making as a series of successive limited comparisons[8]. The selection of goals and the empirical analysis of the needed action are not separated. Decisions become remedial, they move away from problems rather than toward goals. Large shifts in policy do not occur, rather a small change is made, if it has a negative result it can easily be retrieved with small loss, while if it is successful it is allowed to stand. The process is exploratory, goals are continuously changed or new ones found. The number of alternatives is severely limited, since only small steps are considered, thus many important opportunities may be ignored. The test of a "good" policy is that several planners agree on it, or that no strong interest is in opposition. Thus, the direction of policy over some period can really only be seen by an analysis which determines the difference between where the system was at the beginning of the period, and where it is at the end[9]. A characteristic of this model is that decision making is an internal function. The only outside input comes if some interest group is powerful enough to have its opposition considered.

In spite of the validity of Banfield's and Lindblom's criticism, the rational-comprehensive model should not be entirely discarded. In most water resource cases the overall direction provided by a goal structure is necessary to guide the development of a river basin or region, and usually such goals, at least in a broad sense, can be agreed upon. Also, computers and advanced methods of systems analysis make subsystem optimization possible, and this gives a start to a more comprehensive treatment of the entire problem. As Bolan, 1967[10], said: ". . . granted that the world can never be as the comprehensive planner dreams it to be, neither is it so totally incremental as Lindblom suggests. There are many possible positions between the extremes, and planning needs to respond in a manner carefully calculated to be appropriate to circumstances"[11].

In seeking a middle ground, it will have been noted that neither of the two extreme models takes much account of the possible inputs the public could make into the planning process, or of the social environment within which planning operates. The variations that different types of political structures, different community or regional decision processes, and different social climates produce in the content of planning are often recognized by the more aware planners, but rarely have these differences been reflected in the approach taken to the planning task. The urban planning literature has a number of studies that show that as the structure of influence varies, so the nature of the planning proposals change[12]. It is not a very large extension to assume that in the larger environment of a water resource system, despite its heterogeneity, similar processes operate. The newer methods in planning seek to cope with these factors[13].

However, such attempts involve planners in a much broader role concept than before, because it requires consideration of what Bolan[14] calls a "planning style". The components of style he suggests are: variations in planning content; variations in planning methods; variations in planning strategies; and variations in planning organizations. Of these features, most planners have been involved with changes in method and content, but very few have given much thought to developing alternative planning strategies[15] in different situations, or to the possibilities as to where planning should be placed in an organizational structure, and how it should be organized, for maximum effect. From the ideal of the independent, objective, service oriented expert who operates in response to a need or request, to develop strategy or consider organizational change seems to be a much more coercive, or manipulative role. The increase in personal power and initiative available must be tempered by the recognition of the greater complexity of planning and the greater personal responsibility required. It forces a recognition of the fact that planning is a part of the political arena[16]. It makes planners consciously admit that they have as large a vested interest in the fulfillment of their own ideas and planning as do the agencies they work for[17].

Planning Style-Strategies

For those devising planning strategies, consideration needs to be given to two central questions. Where and how are decisions made" Where and how do they feel decisions should be made? It is the differences between the answers to these two questions that will enable strategies to be formulated, and will determine the strategy chosen in any particular case.

The answers to the first question need little attention here. They are covered in depth in the literature describing the structure and operation of bureaucracy and organizations[18]. What will be of interest in this survey is where planners perceive that decisions are made and how they think policies are formulated, and to compare their perceptions with current theory and practice.

The issues raised by the second question, that of the ideal decision making mode, and of who should have influence on planning, is the subject of a good deal of debate and experimentation at present[19]. Among the water resource agencies, the Corps of Engineers is particularly active, with several programs of community involvement in goal setting and in the selection of desired alternative solutions to problems. This work arises from the idea held by many planners that their work should be far more representative of the people it affects. It is argued that works should not simply be done to or for the public by a group of relative outsiders, with experts determining both "needs" and "wants", generally in a national context. Rather, they feel that planning should be carried out with or by the communities involved, in whatever way the affected public feels is in their best interests, and will best fulfill local goals.

This view is much closer to what is held up as the democratic ideal than is the present process. However, a valid question is the practicality of such a system. Is the public competent to have such a role? If so, they must be better informed than at present, and capable of understanding the issues involved. It is possible that these conditions can be met in these days of mass communication techniques, with its supposed increase in public awareness and sophistication. It is a less demeaning view of mankind to assume that man is not only capable of representing his own interests, but also that when mistakes are made, the public will have sufficient maturity to recognize the errors and seek to correct them.

The range of strategies available to planners is detailed by Bolan[20], Bishop[21], and Arnstein[22]. The extreme positions run from compulsion, or manipulation of the public, through to full citizen control over planning. The central positions include such strategies as giving the public an informational input, with planning control still held by the agency; the planner acting as a coordinator for the various interest groups and levels of government; and community advocacy planning where local groups have their "own" experts develop a plan to serve as a bargaining lever to influence governmental proposals[23]. The positions actually chosen will be a function of the planners' or agency's motivation in seeking an external input. If it is a genuine attempt to give people some control over their environment, then a large measure of influence will be given. If, however, as is common, it is a move to eliminate opposition or placate the public in order to expedite the acceptance of an agency's proposals, then only a token gesture will be made, with an informational strategy perhaps being chosen.

Bishop[24], found that the three most popular strategies among highway planners and their concerned public were, in order, the planner acting as a coordinator-catalyst, agency control with community feedback links, and arbitrative planning, where an independent authority arbitrates between community desires and the planner's proposals.

Planning Style-Organizations

The position of the planning function within the planning process can have an important affect on the nature of planning. Within water resource agencies, planning has traditionally been a field level function, since this is where the planner is closest to the public and to the local situation.

However, in recent years there has been a steady shift in authority towards a more centralized decision-making function[25] to provide better control over the interpretation of policy, insure better coordination among conflicting functions and make better use of manpower and resources. It has also been suggested that planning should be separated from the construction and regulatory responsibilities of agencies, in order to give it a better chance at impartiality. There are even proposals to centralize the entire water resource field within one agency. The development of coordination authorities such as the various river basin commissions and the Water Resource Council[26] show the same trend.

Apart from the possible influence of a change in level within a particular agency, there is also the question of the type and location of an organization to ensure the best planning. Four or five possibilities exist in water resources, all represented in the current system. These are: planning from within the executive branch of government (federal or state); planning from the federal or state legislative process; planning by an independent authority or commission; and planning by local irrigation or flood control districts or city departments. Each has its advantages in different situations and for different purposes.

Three aspects need to be explored. Which of these planning groups, or combination of groups will be best in a particular case? Where should the ultimate authority be? What is the current division of authority?

Planning Style-Methods and Techniques

The methods and techniques used are often tied to the strategy chosen, since this determines the level of analysis required, and sometimes whether certain methods are relevant[27].

A central feature of water resource planning in the U.S. has been the demand for an economic analysis, comparing the benefits with the cost of a change. The 1902 Federal Reclamation Act required economic analysis of projects, and the 1936 Flood Control Act specified that benefits, to whomsoever they accrue, must exceed costs[28]. The need for a unified federal policy on economic evaluation resulted in the publication in 1950 of the "Green Book"[29], and probably the best known of all the economic guidelines was made in Senate Document 97 in 1962[30].

The basic issue for planners has currently come down to two questions. Why use benefit-cost analysis? How should benefit-cost analysis be applied? The measurement of benefits, "to whomsoever they accrue", and "all" costs, is a difficult task, compounded by the need to cope with secondary and intangible benefits and costs. In today's climate of increasing environmental pressures and awareness of the social implications of planning, these latter aspects have called into question the entire application of benefit-cost analysis as the ultimate test of a project's worth. Particularly, how is the planner to measure the effects of the intangible factors? Should he attempt to convert everything to a numerical criteria, or should he simply describe the tradeoffs? It is argued, for instance, that it is commonly possible that the intangible social benefits, or prevention of deterioration of the environment provide sufficient justification for a project, or for rejecting a project, regardless of the economic factors.

Part of the cause of this dilemma has been the attempt to carry out multiple objective planning[31]. Historically, many goals have been served in water resource planning, but the central one has usually been that of economic efficiency. The concern now is to try to satisfy several goals simultaneously, to more closely satisfy the needs of the public and to expedite political and social acceptance of the plans. This recognizes that public welfare is more than just economic and that water projects have a significant impact on the nature and structure of society. The concept goes well beyond that embodied in multiple purpose planning, which maximizes cost effectiveness by extending the range of uses served at small incremental costs for the additional functions and actually aims at just one goal, maximum economic efficiency. Multiple purpose projects often also serve multiple goals, but indirectly.

One of the early multiple goal descriptions, although it was never really used as such, was given in Senate Document 97, which specified development, preservation, and the well being of people as the federal water resource objectives. Another proposal for a multiple objective function was advanced in the Harvard Water Program in which, to quote Marglin, "a design criterion may be required to choose the system design that performs best in terms of one objective, subject to a specified level of performance in terms of another, which we shall call a constraint"[32]. Two goals were being considered, economic efficiency and income redistribution. A major experiment in multiple objective planning is currently being tried by the Corps of Engineers in the Susquehanna River study[33]. The three goals sought are economic efficiency (a national concept), regional development (income redistribution), and environmental quality[34]. The latest proposals by the Water Resource Council[35] add a fourth objective, the well being of the people.

Two questions must inevitably be answered as a result of this approach. First, how should the different objectives be traded off against each other? And second, who should decide on the final mix of alternatives?

Planning aims at meeting some sort of public need. How this is determined, and in what time frame it is calculated, is an important part of the planner's job. A planner can become aware of a need in two basic ways. The public, or its representatives, brings it to his attention, because they feel endangered or deprived, or the planner sees a discrepancy betweeen the state aimed at by a goal, and the actual nature of society or the environment. In the former case, the first step must be to distinguish "need" from "wants". In both cases the urgency of the need can only be measured against the goals.

This need can be considered in a short- or long-term sense. The long-term case involves projections or forecasts of the future state of the world. The method by which this is done depends on the kind of world the planner envisions for the future. Most often he sees little change and projections are made by extrapolating from past data by trend extrapolation, trend correlation or analogy methods[36]. If the possibility of a totally different society is considered, where current and past practices will be discarded, then a far more intuitive forecast must be made. The time horizon chosen may determine the most appropriate method. The inertia of society may prevent a major change within 10-25 years, but in the light of past changes over 50 or 100 years, extrapolation methods appear less reliable.

Whitford[36] also points out that an important characteristic of many forecasts is that they tend to be self-fulfilling prophecies. In calculating a water need for a future date, the planner decides on a certain size project. If built, this in turn will help structure the nature and size of the community so that that amount of water will in fact be used. Thus, in what appears to be a simple technical choice, the planner may in fact set in train a series of value laden consequences for the society he seeks to serve.

Parallel to these changes in the conceptual aspects of planning, there has been a tremendous growth in the technological aids available to planners. The development of the electronic computer has meant more than a faster way to do calculations, although its contribution in this role alone is immense. It gives the planner the ability to extend his analysis of the consequences of competing alternatives far further than ever before. The growth in systems analysis has depended on and paralleled the increasing sophistication of computers. Large scale simulations and multiple regression analysis have become practical. It has forced[37] planners to ensure precise definitions, clear and accurate determination of relationships and has demanded specific quantitative data. However, it has also caused an overreaction because planners have attempted to make data quantifiable when it was often really qualitative in nature. Quantitative thinking has tended to overshadow the value of subjectively based judgments.

Finally, the sheer range of the planning process suggested in this discussion has begun to cause the realization that civil engineers are not the only people equipped to have an input into water resource planning. In fact, engineering is just one of the contributing disciplines, which include economics, political science, natural sciences, sociology, mathematics, etc. While the multi-disciplinary approach has often been used in research groups or university programs, cross disciplinary teams are rarely well used by agencies in their planning offices. Until recently, the economic study was an appendage to the basic engineering report, instead of an integral part of the plan formulation. The same growth is slowly occurring in the awareness of ecological and sociological factors.

Planning Style - Content and Issues

In discussing multiple objective planning, four of the basic goals sought in water resources were mentioned: economic efficiency, income redistribution (regional development), environmental protection and the well being of the people. The National Academy of Sciences[38] gave five: national economic efficiency, income redistribution, political equity, control of the natural water environment, and preservation and aesthetics of natural water and water related phenomenon.

Historically, much of the water policy in the United States was built around the assumption that economic development was closely associated with the development of water resources[39]. This was the rationale for extensive navigation programs, many flood control projects and much of the irrigation thrust in the West. This concept is still widely held and often valid, and explains why the economic goal remains one of the central themes of water management. Today, rather than a simple growth citerion (benefits greater than costs), the demand is for maximum economic efficiency (highest return for every dollar spent).

The reality has always been somewhat different, since projects are usually viewed in terms of their regional or local impact, both by the recipients and by national agencies. In partial recognition of this fact, and in an attempt to face some of the social obligations of water planning, a modification of the economic theme is the goal of regional development. Essentially, this goal aims at a redistribution of income. If maximum economic efficiency requirements demand that a region does not grow to its maximum potential, then full regional development may involve a loss to the nation as a whole. The tradeoff is a reduced national growth versus increased local growth. This may be justified in several ways, for instance, as in Appalachia[40], if the assistance given to a disadvantaged group is accepted as a national duty. In other cases it may be taken simply as the price for political gain.

The quality of the environment has become one of the chief concerns of water management today and is one of the key issues in the current political arena. It has arisen over the last few years because of increasing public awareness of the damage done to wildlife and to the quality of air and water. Ecologists and others have given repeated warnings of the limited nature of natural resources, the danger of unchecked population growth and the importance of the environment in terms of man's physical and mental health, and his ultimate survival. Politically, it has been seized on as a safe "motherhood and flag" issue, with almost universal appeal. The public, too, is eager because preservation problems are highly visible and their sources are usually readily identifiable[41]. People apparently feel that it is a policy area where they as individuals can have a real impact on government operations.

Environmental preservation involves more than simply building dams to conform to the local scenery, or landscaping to cover building scars and improve aesthetics. It begins at the outset of planning, in determining the whole direction of a program. A large step in concept is required to shift from the traditional frontier development philosophy of unlimited resources to a program which accepts that water is a limited resource, and that possibilities other than economic progress may have a major demand. It will involve very real costs and can mean sacrifice of certain material advantages[42]. Such choices must be made on very limited and non-quantifiable data, so clear options do not exist.

Water resource projects can have a major impact on the nature of the society which they are built to serve. The possible influence of a growth projection on actual community growth was mentioned earlier. A regional development project, as in Appalachia, can return productivity and growth to a depressed area, and thus change patterns of outward migration. One analyst[43] suggested that a main effect of western reclamation was to displace agricultural production from the South, causing a shift in employment demands. A result of this decline was to force the migration of mainly black labor to the Northeast, making western irrigation a factor contributing to the current socio-economic crisis in the major industrial cities. Whether or not this chain of causality is true, such models are operative to greater or lesser extent in public works situations.

Awareness of the social implications of their work has rarely appeared as a strong influence on the planning of the federal water resource agencies until the recent advent of multiple objective programs. Certainly, the social justification of projects has been a minor aspect compared with economics. Social concerns interact with environmental issues, since certain environmental measures may mean a change in the pattern of growth of a region and even in the social moves espoused. Thus, the spread of interest into one area is helping open up others.

The social sphere includes as a subset the political arena. A particularly important facet of this in water resource public works is the "pork-barrel". Political considerations are recognized by most planners, but rarely are they acknowledged publicly. They should be, since it is the planner's task to illuminate all the alternatives for public scrutiny, and politics is an important factor in decisions. Political equity was also one of the goals recognized by the National Academy of Sciences[38]. The motivations of congressmen are of prime concern. Knowledge of them will enable the planner, if he wishes, to design a range of strategies to include politics in his plans. At one extreme, he could acquiesce in the political demands, at the other he could defy or ignore them. A middle road could be to structure the alternatives to limit the field of choice to a particular direction. Ultimately, the use of such strategies will depend on the planner's personal orientation, whether he sees himself serving Congress, the public, his agency, his profession, a special interest group, or just himself.

Multiple goals and overlapping responsibilities lead to another issue. What should the relevant environment of planning be, both in a geographical and functional sense? What is the area of concern of the agency and of the planner, and who do they work for? Geographically, the choice can be made as wide as the nation, or be restricted to the region, state, county or even city. The functional choice ranges from working for Congress to acting in a purely self interest role. These selections are important, since they determine the goals sought and influence the strategies used.

Public works projects require large capital outlays which may impose heavy burdens on local finances. A question to be faced in planning any project is the choice of financing method. How much of a contribution should be expected from the public? The degree to which a project serves the national interest, or simply meets a local need, should determine the justification for federal aid. For example, is cleaning up the water a national obligation, or does it belong to the polluters, the industries or the cities? Is it still in the national interest to subsidize irrigated agriculture in the West? Is recreation important enough to the nation to be fully subsidized, or should it be a consumer's cost?

Another choice is that of time horizon. Should planning attempt to meet far distant, or immediate, needs? From an economic viewpoint the planning period can be pivotal in determining project justification. The longer the benefit stream, the more chance a project has to be approved. The validity given distant benefits is not just a function of their projected magnitude but also of the discounting rate used in the analysis.

Planning is, by its very nature, a future oriented concept. It is also a highly optimistic endeavor, since it assumes that a future will exist. Else, why plan? Thus, the extent of a planner's optimism and length of his time horizons can greatly affect his selection of projection techniques, the images he has of the future, the urgency he instills into his recommendations, and so forth.

Finally, water management must face some of the problems arising from the mystique surrounding the material itself. In an article entitled "The Conventional Wisdom in Water Philosophy", Bruner and Farris, 1969[44], describe four of these factors.

Water has a combination of physical, economic and emotional attributes making it complex in nature. Some of the aspects are its unique chemical composition and properties, its cyclic characteristics, the "externalities" it gives rise to, and its importance to man. Economically, water can be thought of as a stock or a flow, a free or an economic good, a public or a private good, and a producer or a consumer good. From a psychological standpoint, water has many properties and satisfies a number of needs, ranging from its impact as an industrial or economic resource, through its destructive potential, its everyday apsects in its use as a household solvent and maid of all work, to its recreational and aesthetic attractions and its universal symbolism of purity. The second factor covers certain water images commonly held; the need of water for survival, the idea of agricultural fundamentalism, and the wish "to make the desert bloom", by supplying it with water. Third, it is part of America's cultural heritage that economic growth follows the development of water resources and the conquering of nature. The frontier and pioneer spirit is intimately part of water projects. Lastly, water management is subject to limitations in knowledge and firm data about some of its fundamental processes and reliance on the intuition of its planners is called for.

Together, these four factors are claimed to give rise to certain beliefs (the "conventional wisdom") that are highly influential in current water policy. These are: an increase in water supply is a necessary, if not sufficient answer to most water problems; demand aspects of water are relatively unimportant; price is an unsuitable allocative factor in water administration; and water problems are in need of immediate solution. Though not true in all cases, the operation of this "conventional wisdom" can certainly be seen to have affected federal water planning, particularly in the West. The complexity of water, physically and economically, has been and still is of fundamental importance to most planning. The treatment of water as a special commodity rather than as an economic good has very markedly constrained its efficient allocation[45].

NOTES--CHAPTER II

1. Charles E. Lindblom: "The Science of 'Muddling Through'", Public Administration Review, Vol. XIX, Spring 1959, p. 81.

2. Often, in fact, goals may not be set rationally, but arise out of the current political issue, more through force of circumstance than by choice.

3. As much for legitimation as for true policy decision making.

4. Richard S. Bolan: "Emerging Views of Planning", Journal of the American Institute of Planners, Vol. 33, No. 4, July, 1967, pp. 234- 245.

5. Anthony Downs: Inside Bureaucracy, Little-Brown Co., 1967, p. 175.

6. Edward C. Banfield: "The Use and Limitations of Metropolitan Planning in Massachusetts", paper presented at the Fifth Working Conference on Metropolitan Planning and Regional Development, Joint Center for Urban Studies, Metropolitan Area Planning Council, June, 1965, pp. 12-14.

7. David Braybrooke and Charles Lindblom: A Strategy of Decision, The Free Press, 1963. Chapters 2 and 3.

8. Lindblom: *op. cit*., p. 81.

9. Much policy making in foreign affairs shows these characteristics particularly well.

10. Richard S. Bolan: *op. cit*. p. 234.

11. A. Bruce Bishop: *op. cit*. Chapter 1, in a discussion of planned change has a very relevant analysis of the relationships and permutations of these planning extremes.

12. Richard S. Bolan: op. cit., p. 235.

13. An attempt to solve the problem that Banfield (Edward C. Banfield: Political Influence, New York, The Free Press, 1961, pp. 325-6) describes. "The tension between the nature of the system, and the requirements of planning, is for all practical purposes ineradicable."

14. Richard S. Bolan: *op. cit*., p. 237.

15. A planning strategy is the means by which a planner persuades others that his ideas, values, etc., should influence government policies and plans. It includes the way in which he expedites the passage of his plans through the bureaucratic and political arenas and towards social acceptance.

16. Where it has been all along, of course, but few planners would concede it publically, still preferring to hide under the cloak of professionalism.

17. A legitimate vested interest, since planners should believe in the worth of their recommendations.

18. Many references exist. Some of those most useful to this writer were:
    Herbert Simon: Administrative Behavior, New York, The Free Press, 1957.
    Anthony Downs: op. cit.
    Amitai Etzioni: Modern Organizations, Prentice Hall, 1964.
    Peter M. Blau and Richard Scott: Formal Organizations, Chandler Publishing Co., 1962.

19. Especially in urban planning, largely arising out of the need to gain acceptance of urban renewal plans. Examples are:
    Sherry R. Arnstein: "A Ladder of Citizen Participation", Jour. of the American Institute of Planners, Vol. 35, No. 4, July, 1969.
    Edmund M. Burke: "Citizen Participation Strategies", AIP Journal, Vol. 34, No. 5, September 1968.
    Mervin Mogulof: "Coalition to Adversity: Citizen Participation in Three Federal Programs", AIP Journal, Vol. 35, No. 4, July, 1969.
    Martin Rein: "Social Planning, The Search for Legitimacy", AIP Journal, Vol. 35, No. 4, July, 1969.

20. Richard S. Bolan: op. cit., pp. 237-240.

21. A. Bruce Bishop: op. cit., Chapter 3.

22. Sherry R. Arnstein: op. cit., p. 217.

23. So far this concept appears mainly in urban planning literature. It is more difficult to apply on projects or systems on the usual water resource scale. However, it is essentially the same technique used by certain states in developing their own state plans as alternatives to federal programs. A good summary of the approach is by Lisa R. Peattie: "Reflections on Advocacy Planning", AIP Journal, Vol. 34, No. 2, March 1968.

24. A. Bruce Bishop: op. cit., p. 71.

25. The questions being raised within the Corps of Engineers about the proper relationship between the Divisions and Districts is one example. Another is the possibility of a shift in planning locus from Denver to Washington in the Bureau of Reclamation.

26. Water Resource Planning Act, PL 89-80, 1965.

27. An incremental strategy, for instance, would hardly call for sophisticated analysis. The coordinator, or adversary strategies could use almost any methods, however.

28. Allen V. Kneese and Stephen C. Smith: *Water Research*, published for Resources for the Future, The Johns Hopkins Press, 1966, p. 3.

29. Subcommittee on Benefits and Costs: Report to the Federal Interagency River Basin Committee, *Proposed Practices for Economic Analysis of River Basin Projects*, Washington, D.C., May 1950. Revised by the Subcommittee on Evaluation Standards, May 1958.

30. U. S. President's Water Resource Council: "Policies, Standards and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources", *Senate Document 97*, 87th Cong., 2nd Sess., May 1962.

31. Robert Rehm Werner: *An Investigation of the Employment of Multiple Objectives in Water Resource Planning*, Ph.D. Thesis, South Dakota State University, 1968.

32. Arthur Maass, *et al.*: *Design of Water Resource Systems*, Cambridge, Harvard University Press, 1962, p. 17.

33. Robert R. Werner: *op. cit.*, p. 96.

34. Susquehanna River Basin Study, Working Paper, Planning Objectives, May 1968.

35. Water Resources Council, *Policies and Procedures in Plan Formulation and Evaluation of Water and Related Land Resource Projects*, July 26, 1968.

36. Peter W. Whitford: *Forecasting Demand for Urban Water Supply*, Ph.D. Dissertation, EEP-36, Stanford Univ., Sept. 1970, pp. 8-9.

37. Allen V. Kneese and Stephen C. Smith: *op. cit.*, p. 5.

38. National Academy of Sciences: "Water and Choice in the Colorado Basin", NAS-ARC Pws 1689, NAS, Washington D.C., 1968, pp. 42-55.

39. W. R. D. Sewell: "Water Resource Planning--Changes in the Approach to Water Management in the United States", *Proceedings of a Summer Institute in Water Resources*, Utah State Univ., Vol. *IV*, 1966, Chap. III.

40. Appalachian Regional Development Act. 79 *Stat.* 5, 1965.

41. Smog--automobiles/industry; water pollution--industry/sewage/agriculture; species damage--DDT; etc.

42. Harold Gilliam: "The Spaceship Earth is on a Collision Course", San Francisco Sunday Examiner and Chronicle, This World, Aug. 9, 1970, p. 29.

43. G. S. Tolley: "Reclamation's Influence on the Rest of Agriculture", Land Economics, Vol. XXXV, No. 2, May 1959.

44. John M. Bruner and Martin T. Farris: "The Conventional Wisdom in Water Philosophy", Water Resources Bulletin, AWRA, Vol. 5, No. 4, Dec. 1969, p. 44.

45. Hirschliefer, DeHaven and Milliman: Water Supply--Economics, Technology, and Policy, Univ. of Chicago Press, 1960, Chap. I, p. 4, and Chap. III.

CHAPTER III

SURVEY

The Planner

If a population of planners is to be sampled, it is necessary to define the term "planner".

The first point of reference depends on what "planning" is. Water management includes several different decision roles. Two are particularly important.

A common role for engineers is to act as consultants. They are asked for advice, or respond to an apparent need within their specialty. The important fact is that they respond to a request, they do not initiate action themselves. The analysis is done within a strictly defined set of guidelines as to what can be studied and how far their considerations should extend. The end result is a report or plan, which gives alternative courses of action, and details a recommended solution.

The second role contains the task of drawing up comprehensive schemes for long range development; of defining a desirable direction for growth or for change, determining the alternative possibilities of how to get there, and evaluating their respective impacts on the social, economic and environmental spheres; or of taking a vague, general, policy and turning it into an actual, realizable concept, whether structural or administrative in nature. It means determining the likely shape of the future, who will be affected by the change and how they will react to it.

Men with either of these functions are commonly titled as "planners". The performance of each task results in a plan. However, the latter generally works toward goals in a cognizant fashion, whereas the consultant may do this unknowingly, moving society toward the achievement of an unspecified goal through the cumulative effects of a series of responses to needs or requests for action. The more comprehensive task is becoming increasingly important and this is the concept of planning primarily aimed at in this study[1].

Planners are the individuals within an agency who take the goals of society, turn them into particular objectives for the individual cases and determine the ways to fulfill them[1a]. They make policy into actual schemes for action before they can be given structural reality in design blueprints and construction.

The Population

The most obvious source of water resource planners who could fulfill the role just defined are local, state, and federal government agencies. The

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largest and most important of these agencies are the U.S. Army Corps of Engineers[2], and in the West, the Bureau of Reclamation[3]. Another agency which has risen rapidly to prominence, though not as large as the first two, and without their construction responsibility is the Federal Water Quality Administration[4]. A number of other agencies also have important planning functions, but since it was felt that these three covered most of the currently important areas of water resources, represented a fairly homogenous group of interests, and from a practical standpoint would provide a sample of a manageable size, it was decided to limit the choice to the Corps, BuRec, and FWQA.

A valid question is whether or not the sample is as homogeneous a group as assumed, especially considering the strong historical differences and even apathy between the agencies. Several factors work to support the supposition. Most of the men had had similar educational backgrounds with over 90 per cent being trained as engineers or scientists[7]. A majority had not been restricted in experience to just the one agency. Many had been with other federal departments, others with state or local government and private engineering firms. Their perspective was thus potentially broader than just that of their immediate positions. (Further, as is demonstrated later, major differences in attitude between the agencies were not frequent enough to suggest that as a group, any one agency's planners were markedly different in outlook from the others.) Thus, even though the agencies have different responsibilities and consequently different views of current water problems, their planners could still share similar opinions. Several man actually commented to this effect. Questioned about interagency rivalries[4a], they said that even when the agencies did disagree it occurred mainly at the higher administrative levels and did not extend to the field, where these planners felt that they enjoyed excellent rapport with their colleagues in other departments. In addition, nearly 40 per cent said that inter-agency conflicts did not occur at all (at least any more) or that they simply acted to provide necessary stimulus and incentive.

It was decided to concentrate the interviews on the field level planner. These are the men who write reports, work on benefit-cost calculations, analyze alternatives, coordinate the work of technical groups, etc., but have no major supervisory responsibility. In most cases, this description fits men in the federal grade classification of GS-11 or GS-12. About a quarter to a third of the sample was to be supervisory personnel in direct control of GS-11 and 11 planners. Their major function was supervision, but the overall task was also largely planning in nature. Here, selection among the GS-13, GS-14, and GS-15 grades was indicated.

Within the Corps, the diestrict offices do most of the planning, with coordination by the division offices. Thus in the Corps, the main sample was to be in the preauthorization and long-range studies sections at the district level, with a few divisional planners for comparison. In the BuRec much of the technical work is done in field or project offices but the main task of preauthorization and concept planning appears to be a regional function. Thus all interviews in the BuRec were conducted in the regional offices. FWQA is also arranged in regional and basin offices and planning occurs in both, apparently depending on the local situation. Interviews were taken in both office levels.

An early decision was that the survey would consist of interviews, using a questionnaire which combined structured questions with others which were to be open ended. The questionnaires were to be personally administered by the researchers. Thus only a limited sample size was possible. About half were to be among the Corps, and a quarter each among the BuRec and FWQA, somewhat reflecting relative agency sizes and budgets.

The object was to conduct a nationwide survey, covering most of the major geographic and climatic regions, and as many different types of responsibility as possible. The following areas were selected:

Corps:	District offices in San Francisco, Los Angeles, Fort Worth, New Orleans, Charleston (S.C.), Baltimore, Boston, Detroit, Omaha, and Portland. Division offices in San Francisco, Dallas and Omaha.
BuRec:	Regional offices in Sacramento, Billings, Denver and Boulder City (Nev.).
FWQA:	Regional offices in Chicago, Dallas and Portland. Basin offices in Alameda (Calif.), Denver and Boston.

In a Corps district, or BuRec region, usually four interviews were made per office, one supervisor (GS 13-14) and three planners (GS 11-12). In Corps division offices, only one man was taken in each case. In each FWQA office, two men were sampled, generally one supervisor and one planner[5].

The sample was selected from a list of all GS-11 and GS-12 personnel meeting our definition of a "planner", by random choice using a table of random numbers[6]. The supervisors and Corps division planners interviewed were appointed by the head of the respective planning branches as being most representative of the office's attitudes, and cognizant of their policy direction.

The final sample was as follows:

	Planners (GS-11,12)	Supervisors (GS-13,14,15)	Total
Corps	29	14	43
BuRec	9	6	15
FWQA	7	5	12
	45	25	70

Some of the other demographic details are as follows:[7]

The age distribution gave 14 men under 30, 22 men from 30-40, 18 from 40-50 and 16 over 50. Everyone had been with the agencies for at least one year, and 54 had been there at least 5 years or more. Sixty-seven had at least a bachelor's degree (53 civil engineers, 4 other engineers, 4 economists, 3 natural scientists, 2 physical scientists and 1 geographer) with only three without a degree, but with at least two years of college or equivalent education. Sixteen had master's degrees, and one a doctorate. The sample showed an interesting case of upward mobility, since only 11 men came from families where the father was a professional or had an executive level white-collar position.

The major deficiencies were a distinct western bias with 42 men from west of Dallas, and 28 from Omaha and Chicago or further east. This could partly be expected from the inclusion of a distinctly western agency, the BuRec, but also reflects choices of expediency, made to minimize travel time, etc. One large Corps division (Ohio River) was omitted, and perhaps too many coastal offices and larger districts appeared in the sample. The BuRec sample was reasonable geographically, but possibly some of the larger field offices, such as that working on the Central Arizona Project, in Phoenix, could have been included. The FWQA offices also had a western bias and no offices confronting the problems of the humid southeastern areas were included.

Unfortunately, very little demographic information is available to check whether or not the profile of ages, grades, experience, etc., chosen is reflective of the general profile of federal planners. All that can be said is that the sample looks reasonable.

Interview Techniques

Interviews were personally conducted by the researchers in order that an intimate knowledge of the subjects could be obtained, the open ended nature of many of the questions required knowledgeable interviewers, and because this was apparently the most economical way of getting the information required. There were some problems to this approach. The interviewers were not experienced in the task, they knew what type of responses were sought, and thus would have to control tendencies to lead interviewers and to record what they thought they heard rather than what was actually said. Several steps were taken to combat these difficulties.

The subject matter covered was largely the result of the discussions of the seminars held in 1969-70. Thus, it's range was not restricted to the interests of the two researchers. The questionnaire was pretested by interviews of four planners from the California Department of Water Resources. These were conducted with both researchers working as a team and alternating questions. Both men recorded answers, and observed each other for personal idiosyncracies. The interviews were taped for checking the transcripts and individual interviewing techniques.

As a result of this pretest, the schedule was drastically shortened and two of the steps were incorporated as part of the standard interviewing methods.

Almost all interviews[8] were conducted as a team, with both researchers recording the answers. Tape recordings were taken of every interview. These tapes were used to check the schedules each night after the interviews were made, and one transcript of each interview, incorporating all the information from the three records, was kept. The tapes were then erased.

No resistance to the use of the tape recorder, or to being interviewed, was experienced when the confidential nature of the interviews and the very restricted use of the tapes was explained. The cooperation extended by everyone encountered was excellent[9], and very little attempt to avoid particular answers or to give the agency viewpoint was noticed. Even some quite challenging questions about the relationship of the individual with his agency and superiors seemed to be openly answered.

In spite of the cuts made, the interviews averaged 3 hours in length. Some problems of fatigue were noticed in a few cases, but often the longer interviews were the result of the eagerness of the planners to give as much detail as possible to amplify their answers. Only occasionally was a serious attempt made to restrict planners' answers, it being felt that full freedom during the interviews, with a minimum of direction, was more desirable than saving time. Even then, the only pressure used was just to keep the interview moving. Normally a break was taken in the middle to help minimize fatigue. Usually, two three-hour interviews could be completed each day. Sixty-three interviews were completed between April 20th and June 15th, 1970, averaging 7-8 per week. The first seven were taken in the San Francisco area early in April. They were used as a second stage pretest, but the resulting changes made insignificant difference to the final form.

The Common Data Bank and Analysis

All open ended questions were coded literally. In the initial coding, no attempt was made to fit the answers into a few predetermined categories, but each was recorded fairly closely as given. If there was more than one facet to an answer, provision was made to credit each respondent with as many answers as given. This meant that each question could have many initial coding categories, in some cases 40 or more. Each category was given a separate column on a computer card. One of the answers per question was coded as being the most important given. To determine this, sometimes in asking the question the most important section of the answer was requested, sometimes ranking of the answers was used, on some the central part of the answer was obvious from the weight given a particular idea. On the remainder, the first response given was taken as being most significant. Coded in this form, the entire questionnaire filled 38 IBM cards per person.

The first step of analysis was to select the questions from the data bank which were significant to each researcher's study. The many answers in those questions were then condensed into 3 to 6 more general categories determined by the way the question was to be used. These could then be recoded where needed, into a series of mutually exclusive answers, using just those responses recorded as being most important. The condensation could then be repeated if necessary. Thus a process of 3-4 iterative condensation steps was used to reduce the raw data to usable form for a particular analysis. Not all questions were used in the analysis, some because the answers given didn't answer the original intent of the question, others because of a flaw in the question, and some because they proved to be redundant for present purposes. However, the system used means that the raw data is still available for other researchers, who might have different purposes in mind.

NOTES--CHAPTER III

1. While the comprehensive planner was sought, the sample probably included more of those in the consultant group, since this is the traditional mode of operation of the Corps and BuRec. See Chapter IV, "Planning Objectives".

1a. This task can also be described as administration. "Goals may be set, but it is up to the administrators to activate and guide the process by which broad goals are translated into specific objectives, and by which resources are allocated and expended to convert objectives into achievements."
E. S. Savas: "Cybernetics in City Hall", Science, Vol. 168, May 29, 1970, p. 1068.

2. From now on, the abbreviation "Corps" will be used.

3. Abbreviated--"BuRec". The BuRec is part of the Department of the Interior.

4. Abbreviated--"FWQA". Formerly it was the Federal Water Pollution Control Administration (FWPCA). At the time of the survey, FWQA was part of the Interior Department. In late 1970, it was transferred to the newly created Environmental Protection Agency.

5. The actual breakdown of interviews by office are given in Appendix 2.

6. In the Corps--usually 3 out of 6-12 men.
In the BuRec--usually 3 out of 5-10 men.
In the FWQA--usually 1 out of 3-5 men.

7. Full demographics are given in Appendix 2.

8. Towards the end of the field work, time pressures caused some of the interviews to be done solo. However, taping was still done, the interviews were still checked at night. By this time the researchers were able to feel more confident of their ability as interviewers and had enough experience to keep these interviews consistent with the earlier ones.

9. This could partly be due to the support given the study by each of the agency hierarchies. The Corps interviews were set up through a letter which came from within the Corps itself. The other agencies were first contacted at the highest levels from Stanford, and only after approval was given, and this approval transmitted to the field, were letters setting up the specific interviews sent out.

CHAPTER IV

PLANNING OBJECTIVES

Planning is the process by which an individual selects a course of action for the attainment of ends. It will be judged to be effective if the means chosen attain the ends or maximize that possibility. It is usually assumed that the best chance of achieving this is through a process of rational choice. However, there are limitations on both collective (bureaucratic or political) and individual rationality. These obstacles lead to theories of incremental rather than absolute rationality. Some redefine planning as "a way of thinking, or approaching social problems with the instrument of reason," or as an attempt "to rationalize the objectives given by the political process, and to improve the logic of decisions implementing community goals."[21]

In either case, planning is the antithesis of a philosophy of laissez-faire, or self-directing change. Planning has and sets goals or directions for progress. It attempts to control growth. It is more than just a response to problems and needs or an arbitration of community pressures. (Allowing growth simply according to the wishes of the strongest or loudest.) It tries to guide and predict the future in an effort to ensure that for all, or at least a majority, the community will be a better place in which to live. It involves planners in directing an aspect of the lives of their fellow citizens, thus giving them a heavy social responsibility. Planners must be able to justify their motives and means of intervention to give their proposals public legitimacy.[22]

The above implies that there are at least five possible aspects of attitudes toward objectives that need investigation. What is planning, or what is a plan? What are the reasons for planning, or why plan? What role should the planner assume? What are the specific goals of current water planning (and how are these goals set?) or what direction are the agencies following? What are the individual's personal goals or motives as planners, or why become a planner?

A Plan

The majority, 59 per cent[22a], defined a plan[1] as a means to achieve an end or goal, or to satisfy a need; or less directly, as a guide for future action. Nearly a third had the very limited concept that a plan was the description of a structure or other physical solution to a problem, or was a series of blueprints of something to be built. The remainder saw it as a non-directive presentation of alternatives, or an evaluation of a series of consequences and facts, which should be given its value direction only by those in authority. (Actually, the total proportion of those discussing the evaluative aspects of planning was 32 per cent, if those primarily in one of the first two categories were counted.)

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The centrality of goals to planning is clear. Yet, of all the definitions, just a quarter mentioned that a plan involved the specification of, or working toward a goal or series of goals. (Fifteen of the seventeen mentioning goals gave the means and ends definition of a plan.) Forty-three per cent, evenly spread among the three original categories, viewed planning as a more immediate function, as a reflex or response to a direct need or problem. Only 26 per cent volunteered that a plan should contain a series of alternatives and an analysis of their relative merits. Three or four men, all relatively young supervisors,[23] presented a detailed picture, combining all the above facets into a coherent process.[24]

The perceptions given generally lacked depth. The possible range of involvement and awareness open to, and necessary for, planners if some of the current views of their task are to be implemented, was demonstrated only in a few of the definitions. Over two thirds failed to mention the analytic function and a third saw a plan simply as an end product or as a blueprint. Especially notable was the almost total omission of the concept of a plan as a dynamic, continuously evolving process which is sensitive to changing circumstances.

Planning was apparently viewed mainly as a remedial rather than an anticipatory process; its operation as more incremental than comprehensive; short term ends were held more important than long range goals. In fact, the general impression was that there was more identification with the strictly defined and structured task of the consulting engineer than desire for the supposed independence and initiative available to a planner.[25] Lindblom's model would have been recognized as most applicable to their task description.[26]

A possible part of the reason for this can be seen in the backgrounds of the interviewees. Most had been through a structly engineering education and had primarily engineering experience. Few had had more than a preliminary exposure to other disciplines, such as economics or specially designed planning programs.[27] Most had received their planning training in-house. From a practical standpoint, this may be good, but it is difficult to distill the overall significance of one's actions from a mass of daily detail and administrative issues.

Further, and perhaps even more importantly, the sample chosen was actually biased in favor of our choosing consultants. The Corps and BuRec have traditionally been in the position of carrying out their planning function in response to the request of, or the expression of, a need by a community or state. Despite the need for a more widely coordinated, centralized and long-range approach to planning from within the federal water resource agencies their self imposed image has remained that of pragmatic problem solvers rather than more visionary planners. Only the FWQA, without a direct construction responsibility, may be independent of this view. It is undoubtedly true that for many men in the so-called planning sections, the image given accurately reflects their jobs. Their work is limited in scope, with little opportunity for the exercise of much initiative. Most are simply given a problem to solve without knowing, or having to know, the full ramifications of the plan. The viewpoint is incremental, rather than comprehensive.

In an attempt to give more substance to the analysis, the planners were asked to distinguish those features which separated a "good" from a "bad" plan.[2] (Table IV-1)

TABLE IV-1

Features of a Good Plan[2]

Good planning techniques used (comprehensive, flexible, etc.)	46.4%
Well presented, lucid	2.9
	49.3%
Achieves its objectives, is realistic	21.7%
Economically feasible, technically sound	11.6
	33.3%
Meets public needs and desires; fulfills commonly held objectives	14.5%
Makes the optimum use of resources	2.9
N = 69	100.0%

The first group of nearly fifty per cent expressed concern with the methodology used. A good plan is one which contains the widest range of inputs, considers all the alternatives, is flexible, coordinated and unbiased. It's presentation, clarity and readability were mentioned. Another third were thoroughly pragmatic in outlook. The quality of a plan was seen as being determined by its practicality, that it actually could achieve its objective, that it creates the fewest difficulties, that it should be economically justified, and, of course, technically sound. Finally, around one fifth were content or goal oriented. That is, most important for them was what the plan tried to achieve, rather than whether or not the analysis was complete or that the proposals were fully realistic or economical. Included in this last answer were responses such as that a plan should solve peoples' problems, that there should be general agreement on its objectives, that it should provide the greatest good for the greatest number, and that it's proposals should be publicly acceptable and sensitive to local political philosophies.

All the features mentioned are undoubtedly vital to the success of a plan. It is difficult and perhaps unfair to make a meaningful distinction between these answers. Nevertheless, the indication was that the planners were more caught up in the task of planning, in the rules controlling their work and the means of justification, than in its content.

In fact, if true, this is hardly surprising, since it is by their conformance to agency or legislative requirements that their performance is measured, rather than by the excellence and public acceptance of the results they achieve. To give planners the freedom to pursue the full effects of their work they should be aware that planning is a function which cannot, and should not, be assessed by the traditional measures of production units achieved (e.g., the number of projects found to be feasible, or the largest possible planning and construction budget). An attempt should be made to assess the quality of the plan in terms of what it tries to achieve, the means it proposes and how well it assesses the potential effects.[28] The responsibility for this change in emphasis does not lie primarily with the planners, but with the agencies and Congress, since it is their demands the planners are expected to meet. Some support for this view, or at least a demonstration of an awareness that the problem exists, was given in the answers to a question about how planning could be improved.[3]

Because this query was primarily directed towards opinions about the planning process itself, rather than aims, it was not surprising that again only a quarter discussed the need for a policy change. More important, however, it showed that planners feel that they work under three major constraints. The principal one is that planning receives insufficient resources of men, money, or time, since too many studies must be carried on simultaneously. This provides a contributing reason for the emphasis on method over content; planners are too heavily laden with everyday detail to give the necessary attention to the full ramifications of their plans.

Secondly, about 41 per cent felt that their freedom was restricted in a legal or organizational sense. When the law, agency regulations, or a supervisor act to limit the topics a planner can pursue, then obviously the plan will be less comprehensive than it could be. Thirdly, a fifth recognized the need for either a wider coverage of disciplines than is provided by engineers or the more intensive scrutiny provided by a study team. Again, the suggestion is that current planning efforts are incomplete in their consideration of alternatives.

These answers suggest a greater level of unease about the limitations on the coverage of plans than was demonstrated by the answers to preceding questions. Even if under the practical requirements of their jobs, planners perceptions are restricted by the demands of methods and rules they must use, the desire to do more and, more importantly, the appreciation that more is possible apparently still exists.

Why Plan?

It has been emphasized that planning is not a neutral function. Although planners usually attempt to be as objective as possible, the results of their proposals have a decidedly subjective impact on the community. The rationale for their work held by planners is important because it should legitimize their interference in the processes of social change. Table IV-2 summarizes the ranking given to a series of structured alternative purposes for planning.[4]

The most popular choice was that the aim of planning is to provide a basis for meeting future water needs. Three possible factors operated in this selection. The statement summarizes the general aims of the agencies, making it an easy and obvious option. The second stimulus was apparently the word "needs". It is part of a strong indication emerging from the entire discussion of objectives, that planning is, and should be, primarily a response to a need or problem rather than to a set of long range goals[29,30]. Responding to needs implies being asked for help. By acting on request, advice can be given from a largely neutral or value free position, which leaves the planners with the least personal responsibility for their decisions.

The next ranked alternative continued the emphasis on non-directive objectives, but here the focus was more specifically on the service aspects. Twenty-two per cent felt[4] that planning should be aimed at helping to fulfill the agency's responsibility to the public. Less clear, however, is whether the service was seen as being rendered mainly to the agency or the public.

Overall the picture is different. More directive views of planning emerge when second and third choices are included. Purposes such as preparing a document describing project alternatives or giving methods to achieve economic and/or social gains were more frequently chosen[4]. Grouping them broadly into directive, service, and non-directive[31] purposes, the sum gave a 40-20-40 split respectively (Table IV-2). The planners desire to stay neutral was tempered by the recognition that they inevitably must impose value decisions.

The secondary emphasis given the more manipulative aspects of their work reflected an understandable attempt to minimize the fact that planning does mean the imposition of personal values on others. However, this is inescapable. This fact must be fully recognized and given adequate analysis within the planning itself before the plan can become fully responsive to the community it seeks to help.

The difference between the primary and overall selections gives rise to some ambivalence in determining the planners' sources of legitimation[32]. No single justification is available. The nondirective and service goals emphasized by their first choices, seems to indicate that their authority is derived mainly from the consumers of their plans, that is those they seek to serve, whether this is the community, the agency, or Congress. The image is of the planner as a consultant who does as his client directs. Some weight also derives from their expertise which qualifies them for this role[33], and their professional commitment which limits their behavior. The more directive choices that have a "planner knows best" view, demonstrate a greater claim on the two latter authorities, expertise and professionalism.

The question of who the planners felt they should aid as consultants, or that planning should serve, was left unanswered earlier. Put directly it asks whether current planning is meant to provide for the people, or is it used to justify the decisions of, and thereby support, the bureaucracy?

TABLE IV-2

The Objectives of the Planning Process[4]

	1st Choice	Overall Sum of 3 Choices*
Directive		
To prepare a document describing project alternatives	13.0%	50.7%
To show a way to achieve socially useful objectives	4.4	20.4
To show ways to achieve economically useful results	4.4	46.4
Implement plans/optimum cost effectiveness	1.4	4.2
	23.2%	121.7%
Service		
To meet the agency's responsibility to the public	21.7%	60.9%
Non-Directive		
To provide a basis for meeting future water needs	45.0%	74.0%
A standard to measure progress to water resource goals	8.7	31.9
Anticipate change	0	1.4
Illuminate future alternatives	1.4	10.1
	55.1%	117.4%
N = 69	100.0%	300.0%

* The planners were asked to rank their top three choices. The second column is the direct sum of the number of rankings of any particular alternative, without any attempt to weight them according to the ranking given. Weighting was investigated, but did not significantly alter the relative choices.

The answer determines the strategy chosen. Strategies can be used to get better, more responsive planning or at the other extreme just to gain public acceptance of and expedite the plan. The balance each planner must determine for himself is between meeting what he sees as the full public will, and the necessity to ensure the plan is justified and is within his legal responsibility.

The evidence is that only those giving planning a service function[34] were fully committed to a consultant's position. They had a service oriented personal role image, and saw decision-making as being largely the right of those outside the federal agencies, such as the general public, Congress, or regional, state or local bodies (Table IV-3). Since their authority is derived from the consumers, these planners were apparently ready to accept the restrictions and even the irrationality of the public will. The position is an admirable one, but taken too literally it could represent an abdication of the accountability planners must accept.

Just as positively, those choosing one of the directive alternatives also had a directive role concept, and felt that the planner himself, or his agency, should make all decisions. Although their liability is apparently accepted, the primary identification is with the agency, not with people. The authority is that of expertise and bureaucratic position. The concern is with the plan and its successful progress rather than who it affects.

The compromise between these positions should have planning controlled by and providing for the public, but with planners acknowledging, and accepting full responsibility for the direction imposed by their value judgments. Those opting for the non-directive category (largely those who said planning should aim to meet needs) begin in this direction. Their personal role concepts were spread, but emphasized that of the coordinator. On decisions, a moderate trend saw a local viewpoint prevailing in goal conflicts, but upheld the right of the planner or agency to decide what needs and alternatives should be considered, and to select the ultimate plan to be carried out. While the public was placed first, the degree of planner control sought was still high.

It is necessary that planners become aware that the independence of the coordinator or consultant cannot be accompanied by the authority or unquestioning acquiescence of the clients. The public or its representatives should have the power to select the final plan, and to make some input into determining needs and alternatives, without affecting the planners' involvement or moral commitment.

Personal Role

The preceding section has shown that planners have mixed, even confused, views of the functions served by planning and of their personal roles within it. The same range of opinion was evident in their choices when faced with a series of specific alternative roles[4a].

Once again, the primary desire of the majority was to seek a nondirective or service oriented task. Nearly 40 per cent said that planners should simply act to serve the public, and a further one in five felt that their job was just to coordinate the work of all interested agencies and public groups (Table IV-4). The role preferred was that of the technical advisor, whose input is legitimized by being given in response to a request and by the planner's expertise and professional standing.

TABLE IV-3

Objectives of Planning versus Personal Role and Decision-makers

		Q. G134 Planning Objectives[4] (First Choice)			
		Directive	Non-Directive	Service	
Q. P241[35] Personal Role Planner should fulfill (first choice)	Directive	9**	14	4	27
	Coordinate	3	11	0	14
	Service	4	13	11	28
Q. S69[36] Should the public have decision making power?	Yes	3	14	11	28
	No	13	24	4	41
		16	38	15	69
Q. S81a[37] Who should decide on needs?	Planner/ Agency	8	20	3	31
	Public/ Congress*	7	17	12	36
Q. S81e[38] Who should decide what the best plan is?	Planner/ Agency	7	17	3	27
	Public/ Congress*	8	20	12	40
Q. S80d[39] Who decides on what alternatives are studied?	Planner/ Agency	12	31	6	49
	Public/ Congress*	3	6	9	18
		15	37	15	67
Q. G132[40] Who resolves conflict between local and national goals?	National view	8	10	7	25
	Local interests	6	27	8	41
		14	37	15	66

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[*] Public/Congress = decisions by public, U.S. Congress, state & local interests or regional commissions, etc.

[**] Underlined numbers are those larger than the expected value if relationship was due purely to chance.

However, in this case, there were nearly twice as many (39%, rising to 50% overall) who sought one of the more directive functions available to planners. Accepted were such tasks as educating the public, having the ultimate decision control over projects, and being able to actively promote the project to outside interests. The implication is that these men were more willing to rely on the authority of their own expertise[33] than previously.

The conflict expressed is a familiar one. The agencies' historical mode of operation and the accepted task of planners, has been to serve, to respond to the demands of the public and Congress. This view (Table IV-4) still has considerable force, especially if the current role perceptions, which heavily emphasize service (with the limited technical task being quite strong)[41] and coordination activities, are accurate.

However, there is a growing awareness of the need for a more independent and comprehensive planning operation to cope with the increasing and interrelated problems of the utilization of natural resources and maintaining an adequate quality of environment. To achieve this, the planners evidently feel that they should have more personal authority, freedom, and a better educated public.

Despite this mixture of role perceptions, planners' feelings of efficacy remained fairly high. Around 60 per cent said that their views received some expression in agency policy[4d]. The main mechanism was felt to be through the influence of field decisions or comments on plans (33%). Others (23%) felt they had opportunity for more direct influence through written or verbal suggestions to their superiors. The major complaints were the lack of communication channels available (20%) or the limited opportunity to exercise initiative (11%).

Further, the planners desire for a policy input was even stronger. Nearly 90 per cent felt that they should be able to influence agency policy[4e]. Thus, whether or not a directive role was openly sought, most expressed a desire for at least some control of their agency's direction. The primary reason (50%) given was that being closer to the problem, the planners could best represent the viewpoints of local interests and understand field problems. Others saw policy as a field function because it most directly affected those in the field. Only 11 per cent felt that they should influence policy because they were the most competent to make such decisions, and this was nearly balanced by those who said that planners lacked the expertise to make a meaningful contribution.

The image (Table IV-5) which emerges is that those with the highest feelings of efficacy, with confidence in their current role and who felt most strongly involved in the plans of the agency, expressed a wish for a directive role. Those who saw themselves as currently functioning mainly as a coordinator, as not emotionally involved and with a low ability to influence policy, accepted a non-directive position. Those who wished to serve, commonly also felt this to be their present function, still felt efficacious but were mixed about their level of emotional involvement. However, there

TABLE IV-4

Planners' Personal Role Preferences[4a,4b]

	1st Choice	Sum of 3 Choices	Current Role
Directive			
Educate the public about consequences of water planning	12.9%	64.3%	1.4%
Have decision making power to determine direction of development	12.9	37.1	7.1
Actively promote the project being worked on	10.0	22.9	10.0
Initiate change to maintain progress	2.9	27.1	2.9
Independently form a plan - get projects completed	0	2.9	1.4
	38.6%	154.3%	22.9%
Service			
Act to serve the public	38.6%	52.9%	22.9%
Serve in technical capacity	2.9	5.7	18.6
	41.4%	58.6%	41.4%
Coordinate (Non-Directive)			
Coordinate all agencies and interests	20.0%	87.1%	35.7%
N = 70	100.0%	300.0%	100.0%

were almost no indications, as occurred in the previous section, that these personal role preferences were in any way related to planners' opinions about where specific decisions should be made.

Overall, it appears that those who sought the more directive positions actually have the greatest potential to fulfill the demands of a more comprehensive planning approach. They were confident of their own ability and displayed a greater sense of personal involvement in the nature of the plans than their colleagues. However, in their zeal to plan effectively, they should not lose sight of their ultimate purpose, which is to seek the welfare of the community. This requires a greater degree of public control than they are presently willing to accept (Table IV-3).

Those opting for consultant or coordinator positions appeared to be less interested or willing to bear personal responsibility for their value judgments than the above. Though seeking simply to serve the public is an admirable position, it is not one which is truly available to planners

TABLE IV-5

Personal Role[4a] versus Present Role, Level of Involvement[4c], and Personal Efficacy[4d]

		Q. P24 Planners' Personal Role Preferences (First Choice)			
		Directive	Coordinate	Service	
Q. P25[41a] Actual role at the present time	Directive	10	1	5	16
	Coordinate	9	9	7	25
	Service	8	4	17	29
Q. P27[41b] Level of Emotional Involvement	High	23	4	20	47
	Low	4	10	9	23
		27	14	29	70
Q. P29[41c] Personal Efficacy-- are field ideas included in agency policy?	Yes	17	5	20	42
	No	8	9	7	24
		25	14	27	66

today. Public servants are confronted with the need to trade off the demands of conflicting value systems, and must face that they will limit the personal freedoms of other men. Confidence and a degree of emotional involvement may be just as valuable a basis for this as reliance on professional objectivity. The "ideal" planner may no longer be the most independent, rational and professional individual. Rather, the need is for men confident enough of their own integrity and expertise to be able to also accept community direction of their plans.

Personal Goals

Downs[42] describes the motives of officials as a mixture of goals from two sources. All men, at least in part, act to serve their self-interest, or to maximize their individual well-being. Examples are goals such as power, money income, prestige, convenience and security. The second set of objectives arises from the "social function", that is, from the role an individual fulfills in maintaining his part in society's division of labor. Because these actions affect others, they are externally valued. Personal loyalty, pride in the proficient performance of work, the desire to serve the public interest and commitment to specific programs of action are applicable[43].

A planner is more heavily involved with the community than most officials. Planning attempts to interfere with and manipulate the process of change. The acceptance of social responsibility by planners should therefore be particularly strong. There is also a high potential for planners to advocate a particular direction for reform or change. In sum, the reasons given for choosing a planning position[18] were a fairly even combination of self interest and social motives.

The primary selection was most frequently given as selfish in origin. Convenience, or circumstances (being in the right place at the right time, the ease of the transfer, the pressure of events, and having the skills and training which best matched the job) were chosen by half the sample, with a further 13 per cent claiming even narrower self-interest reasons (wages, security, promotion, travel, etc.).

Pride in accomplishment, or in the challenge offered (the need for initiative, policy involvement, variety of issues) was moderately popular but was most heavily given as only a contributing reason for planning. The most altruistic of all the alternatives, public service, was also more commonly seen as a secondary motive. Even then, the selection was not entirely selfless. A number of men had as much a program emphasis (planning mainly to promote the conservation of resources) as a service outlook.

The planners were overwhelmingly satisfied (88.6%) that whatever their original motives had been, planning had proved to be a good choice of profession[19]. Sixty per cent said that they would consider no other, given a fresh opportunity[20].

The explanations[19] showed a slim majority of those claiming pride in meeting the difficult nature of the task itself, and enjoying the sense of accomplishment of rendering service to the public. Most of those dissatisfied had just the opposite outlook to the first group; they disliked planning because of its complexity and ambiguities. Only one man was unhappy because he felt a conflict between his own and the agency's goals.

Most of the planners would have been classed according to Downs[44] as "conservers" rather than "climbers", since they were generally non-aggressive, searching for convenience rather than promotion[45]. Mixed motives dominated by a service or advocate outlook were exhibited by about a quarter of the sample. The high potential for advocacy was unfulfilled, with only four men accepting that goal. No particular feeling for water resources, as opposed to any other type of planning, apparently exists. Primary loyalty to the general welfare, the position of the theoretical bureaucrat, was not as strong as anticipated (or as it should be) although it was shown somewhat when the lesser motives were included. In fact, and probably not unsurprisingly, there was little in their personal goals to distinguish this group of planners from any other group of professional civil servants.

GOALS

A basic theme of this study has been that water planning should involve a cognitive attempt to find means to satisfy community goals. A planner's identification with the goals of his agency[46] will strongly influence the nature of his work, and may determine the sense of personal achievement he gets from it. More important, perhaps, than whether or not the agency actually has goals, or what they are, are the perceptions the individual has of them[47].

The issue "Is your agency's planning directed by a set of long range goals?" produced a slim majority (55%), who gave an unequivocal "yes." Six men saw limited, unwritten, or goals set in ad hoc fashion for each study. A large minority, 38 per cent, felt the agency did not have goals, or didn't know if there were any[6].

The number in the minority is surprising and disquieting. It indicates that over a third of the "planners" interviewed were not performing a real planning function at all! This opinion was even shared by several individuals. Four men said that they did not feel that they were planners. Another gave as his chief source of frustration that he did very little planning, because as he put it "the federal government does no planning, it just collects data."

There are four likely reasons for the size of this group. One is that the agencies do not in fact have any goals. This can be discarded, since all the agencies covered by the survey follow a number of federal acts or guidelines specifying objectives (such as SD97[48], with goals of national development, preservation and the well being of the people, the Water Resource Planning Act of 1965[49], and the National Environmental Policy Act of 1969[50]). Secondly, although legally bound by such goals, the agency might ignore them in favor of its hidden agenda. For instance, planning could be done merely to satisfy certain constituents, such as congressmen or major economic interests whose support is vital to the agency's prosperity. This was prevalent in the past. Today the issue is less clear though certainly not dead. The third is that knowledge of the legislation controlling their work is very limited at the field level, and that the agencies do not give sufficient opportunity for planners to get this exposure. This may well be true. It was noted earlier that few of the planners had attended many meaningful courses or seminars outside the strict engineering field. In answer to a question to assess their familiarity with the laws[8], fourteen men (or 21% of all the planners) could list no laws passed in the last 10-20 years that had significantly changed the quality of their work. Over 54 per cent named three or fewer laws. One man commented that he could see little direct connection between legislation and planning. Finally, it could be that because goals were not considered to be of prime importance to planning, since the purpose was simply to meet needs or solve problems, they were ignored. This is distinctly possible[5].

The distribution of those acknowledging goals, and those showing the greatest knowledge of water resource legislation is interesting. It was felt that the younger planners, more recently from the universities where there has been increasing emphasis on the concepts of planning in addition to the strictly technical aspects of engineering, might actually make more frequent goal claims. This was not the case; no significant differences along age, grade or length of experience dimensions were evident. It may be concluded also that the process of agency socialization towards its specific aims, which should increase with time, is not directed towards, or effective in creating an awareness of a goal structure.

However, there were better relationships between familiarity with the laws and higher grades and longer service (Table IV-6). Age was still not a significant variable. The operative processes were apparently the length of agency exposure and the fact that longer term planners and supervisors have a better chance of being chosen to attend planning short courses and special seminars where the laws are likely to be discussed.

There were variations in goal perceptions between the various regions. The Western and Northeastern planners were far more likely to say that the agency had long range goals than those in the South and Midwest. Those in the West have been involved with the development of untapped resources for national economic growth, and in certain areas, preservation objectives. Northeastern planners have been making studies on the Susquehanna River and in the Boston region, where the multiple goal concepts of the Water Resource Council guidelines are being tried. In the South and Midwest these pressures and opportunities are less evident.

Both differences above give a strong indication of the increasing awareness engendered by simple exposure to planning concepts. Programs aimed at the younger men and planners with limited experience rather than primarily for supervisors are needed.

The goal descriptions of those who said the agencies in fact had such long range aims, support the view that there is a low level of understanding of what these goals are, and continue to demonstrate the reliance on needs to give plans their direction[7]. Less than half mentioned specific objectives, or even the goal of national economic efficiency implied by benefit-cost analysis. The multiple objective statements of SD 97 or the latest Water Resource Council proposals, were given by 13 per cent, and economic development and management aims by a like number. Seventeen per cent responded that their goals were simply to meet the needs and to provide service to the public. A fifth had even more limited concepts, giving that their goals were to build water control structures or to provide for water uses such as water supply, navigation, flood control, etc.[7] Of those who said there were no goals, six people talked of working to meet needs. Four men showed an awareness of the broader goal concepts, but maintained that in fact, though available, the agency did not use them[7].

The service goals can hardly be faulted since they are mentioned in almost every law, but they are too general to be accorded much significance. The considerable proportion (19%) who saw as goals what should be considered as part of the means available to achieve ends such as economic growth, showed a definite lack of understanding of what constitutes a goal. Of those who said there were definite agency objectives, less than half showed a real knowledge of what they are, or an awareness of what they mean[54]. Overall, about 70 per cent of the planners are apparently working without genuine long range goals. The evidence of a perception that planning is just a

TABLE IV-6

Knowledge of Laws versus Planner Grade and Experience

		Q. G107 Number of laws mentioned[8]			
		0	1-3	4-7	
		14	23	33	70
D - Grade[51]					
Planner	GS-11 & 12	13	17	15	45
Supervisors	GS-13,14,15	1	6	18	25
D - Planning Experience[52]					
Years	Under 10	6	17	15	38
	10 and over	8	6	18	32

Goal Claims by Geographic Region

	Q. G124 Does agency have long range goals?[6]			
	Yes	Some	No Don't know	
D - Region[53]				
Far West, West, Northeast	33	2	16	51
South and Midwest	5	4	9	18
	38	6	25	69

response, without real initiative, is further strengthened. There is an evident need for those in the planning sections of agencies to be exposed to some of the broader concepts of their jobs, and even more basically, simply to be made aware of the legislation that controls their agency, what its aims are and how it has been interpreted in specific agency guidelines and planning rules.

Current Goals of Water Planning

A slow change in national priorities is occurring. The traditional overriding goal of progress through economic growth is being challenged by those emphasizing the quality of life over material affluence. This is particularly true in water resources. The primary target of national economic efficiency is faced by demands to openly consider regional and local growth and environmental preservation. Even strictly social aims must be reconciled. The catchall "to protect the well-being of the people" may be acquiring a more specific meaning.

At issue is whether or not these new or revitalized goals are also being accepted by the planners. It is important because it should provide an indication as to how ready the agencies are to move into these areas. From an organizational standpoint, it may reveal whether a unified outlook exists among their field offices. Downs[55] points out that goal concensus is essential to a true decentralization of authority.

Among a set of economic goals[9] the primary identification was with the national good[10]. Maximum economic growth was the first choice of 39 per cent of the sample. Nearly as popular was the essential conservation[56] aim of maintaining the resource base[57]. Since both have been basic to the work of the Corps and BuRec, the result was expected, but was still strong enough to indicate some identification with the agencies' purposes.

However, considering the overall sum of three goal choices, while these two remained strong, the preference for more limited goals such as regional or local growth opportunities and control over regional development were stronger[10]. Since national government interference in state water development is not yet fully accepted although its necessity is becoming evident, this demonstrates one of the realities of planning. While the surface justification for a project is made on national grounds, the job of field planners is to solve local problems, and they must satisfy the demands of their immediate constituents (especially the Congressional delegation) in order to get necessary support. Thus income redistribution, used in the sense of maximizing a subsystem's growth, was well supported. However, when more directly phrased as "to redistribute income from the rich to the poor," the concept was rejected, probably because of a basic conservatism among the engineers and an incomplete understanding of the goal.

National defense was included because it is almost always used as part justification for Corps projects. It received little attention, confirming its status only as window dressing.

The choice of environmental goals[9,11] was confused by the inclusion of the very general and easily accepted objective "to enhance and improve the environment," which overwhelmed the other alternatives[58]. In spite of this, the responses showed the growing desire to meet some of the nation's current non-economic demands. The popularity of the "ecology" image[59] was demonstrated by its 70 per cent selection when all rankings were summed.

Recreation was often mentioned, but was weak in comparison to the present public demand and its frequently decisive weight in justifying plans. Limited support for activist positions, such as the preservation of unique areas and population control was also shown.

When a choice between the economic and environmental alternatives was forced[9,10,11], the latter remained strong. Again the unassailable nature of the first environmental alternative was partly responsible. Even so the trend away from economic ends was probably significant[60]. In view of the fact that the benefit-cost ratio, which measures a project's relative contribution to the nation's economy, is a universal criterion among the agencies, the selection of national economic growth was quite low. Also when the responses were regrouped into three broad categories emphasizing economic growth, resource management and protection of the environment respectively (Table IV-7), 70 per cent opted for the latter two over a pure growth philosophy[12]. It was interesting to note that population control remained as popular a choice overall as it was when just in the environmental group, indicating the existence of a small but committed group of activists[11].

Although due in part to the restriction on the interviewees choices, a greater emphasis on national goals was also demonstrated. Income redistribution and regional or local ends received little support. When the possibilities were sufficiently limited, it was the more general public responsibilities, reflecting the official agency position, that were given, rather than the day to day demands of community involvement.

The division by agency on goals also reflected their legal functions. Corps planners emphasized economic growth and gave moderate support to environmental alternatives. BuRec was strongest on management aims. FWQA went for the environment, and to a lesser extent management ideals.

TABLE IV-7

Water Resource Goals[9,10,11,12]

	1st Choice	Sum of 3 Choices
Economic growth emphasized	30.4%	81.1%
Management emphasized	27.6	88.5
Environment emphasized	42.0	130.4
N = 69	100.0%	300.0%

TABLE IV-8

AGENCY VERSUS GOALS CHOSEN[62]

Q. G128:	Corps	BuRec	FWQA	
Goal Emphasis:[61]				
Economic growth	16	4	1	21
Resource management	9	6	4	19
Environment	18	5	6	29
	43	15	11	69

Further support was given for the contention that the planners feel that the agencies should move more strongly into planning for the environment[13].

Economic goals were viewed as overemphasized by nearly half of the sample, while only fifteen per cent felt that they have received inadequate attention. The reverse was true for the environment, although over a quarter saw some overreaction in the current wave of concern[63]. Population control again received its core of support.

Significant by its general omission was mention of social goals[64]. They were neither felt to be overemphasized or not being met. This could indicate either a lack of understanding of the social influence of water planning, or simply that planners don't see them as being part of their responsibility. Over the entire survey, in fact, little evidence of a strong social consciousness was found.

One other facet of the responses was that, in both instances, over twenty per cent apparently accepted the current approach to water planning, or, at least could not think of any deficiencies. No completely new or different goals were suggested either. There was certainly no evidence from any of the respondents of a perception that major problems were being overlooked.

Breaking the goal preferences among the different groups of planners (Table IV-9) it was apparent that our preconception that social and environmental questions would be better received by the younger men was borne out in this case. Planners in the GS-11 and G-12 grade, under forty, and with less than ten years agency or planning experience, chose environmental or management goals over economic ones and were more likely to feel that the latter had also been overemphasized. Older men said that too much effort had been spent on social and environmental considerations and that economic objectives were most important. This result was probably caused by the educational emphasis now being placed on the broader aspects of planning, the fact that the present environmental crisis is heavily youth supported, and the generally more idealistic nature of younger men.

TABLE IV-9

Goal Emphasis* versus Age, Grade, Service

Q. G128 - Goal Emphasis

		Economic	Management	Environmental	
		21	19	29	69
D - Age					
Years	Under 40	8	13	15	36
	40 & over	13	6	14	33
D - Grade[66]					
Planner	GS-11 & 12	11	13	21	45
Supervisor	GS-13,14,15	10	6	8	24
D - Agency Service[67]					
Years	Under 10	6	12	16	34
	10 & over	15	7	13	35

Overemphasized Goals versus Age, Grade, Service

Q. G129 - Overemphasized Goals

		Economic	Environmental	Social/ Population	
		30	19	4	53
D - Age[68]					
Years	Under 40	18	7	0	25
	40 & over	12	12	4	28
D - Grade[69]					
Planner	GS-11 & 12	21	8	1	30
Supervisor	GS-13,14,15	9	11	3	23
D - Agency Service[70]					
Years	Under 10	19	4	1	24
	10 & over	11	15	3	29

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* Using first choice goals only[10,11,12] - See Table IV-7.

There was also a slight indication that a regional difference existed. Western planners[71] tended to view economic goals as having too much weight while those from the industrial and populous East, Midwest, and South felt that the environment and social factors were overstressed[72].

SD 97[73] states that the overriding determinant in considering the best use of water and related land resources must be the "well-being of the people." The only real clue to a specific meaning is that "care should be taken to avoid resource use and development for the benefit of the few or the disadvantage of many." General goals of this type are part of many laws and planning guidelines[74]. They are usually viewed as catchalls to cover any contingency omitted directly. Because SD 97's "well being of the people," and a similar phrase, "the common good," are so frequently used, and do indicate an attempt to ensure that some consideration is given to the social influence of plans, an attempt was made to find out what they convey to planners[14].

A wide range of responses was given. By far the largest (57%) was that these clauses were meant to remind planners that the ultimate object of their attention was a human being, and not the statistical, technical or economic detail and regulations faced on a day to day basis[14]. This general theme had several subdivisions. The main one (20%) was that they meant that the people should be given what they want; that the interests of the public should be served first. A second group saw them in physical terms, as ensuring the health (13%) or the highest standard of living (12%) of individuals. Four men discussed them as a guarantee of individual liberty and rights, and three said that the concern was the quality of life. The second response (22%) was the one included in SD 97, that the good of the majority, "the greatest good for the greatest number," was being protected. Some put this in reverse order, that the fewest should suffer when a majority is served.

Other minority definitions were more specific. Local needs, the environment (20% overall), and economic good were all mentioned[14]. An unexpected description was that they meant that planning should be futuristic, far sighted, looking beyond just immediate problems and needs. Nearly one fifth also mentioned their catchall or safety-valve function.

All the aims given were valid ones. The motives demonstrated by the largest group were for the first time openly human centered. However, the question was directed this way. It may be more important that over forty per cent failed to use this choice. Even within the majority, only seven men really showed concern for the individual.

If social goals are to be served by water planning (inevitable even if not consciously done) there is obviously a need to have them more directly spelled out in legislation and agency regulations. Planners must be made aware of what they are and how they should be incorporated in their work. General statements of the type presently relied on do not give the leverage required to ensure social goals equal weight when compared with economic benefits and the environment.

Generally, it appears that a reasonable goal concensus around current economic and conservation goals exists both among the planners as a general group and by agency. Environmental goals received heavy support, but mainly in a broad sense, not in the more single purpose, action oriented alternatives. There was no evidence of major dissatisfaction with the direction of water planning, or that different offices emphasize very different ends. Although there was some goal division by age and experience, this did not appear to be strong enough to create real dissension.

However, a readiness to accept a change in goals was apparent. The traditional objective of national economic growth is still accepted as valid and should remain strong, but will be tempered by an increasing emphasis on regional development or redistribution. Concern with the environment was deeper than anticipated, and being held more by younger men, it would appear likely that this will continue to grow. The planners' reassessment in this area may have been more profound than the changes within the agencies themselves, or at least than their new programs have yet shown. New initiatives from Congress on control of the environment should receive ready support at the field level.

The importance of social goals in water planning was not widely perceived, or highly rated. An increase in community and Congressional pressure, similar to that boosting the environment, will be necessary before social goals receive full attention.

Goal Source and Decision

The perception of where and how goals are set is basic to the development of an effective planning strategy. It establishes for whom the service is intended, the planner's primary allegiance and thereby the reasons for the choices made. It also provides some limits to the alternatives considered. Two facts are evident so far. Many planners have a limited understanding of the general nature of goals. When given specific examples both national and local objectives were accorded considerable weight, but with the former dominant.

For the broad goals referred to above, the impression given was that they are seen as resulting from a two-stage process[15]. They are suggested or advocated at one level, but are confirmed and established by a different group (Table IV-10).

The initiative was felt to come primarily from the public through the articulation of a need or through public pressure on a legislator for a particular local project. When the need receives sufficient support or publicity, it then becomes an agency goal. This latter decision was almost always seen as belonging outside the public's authority, being made by Congress or the Executive[75], and occasionally also at the agency level.

The concept here is a specific and immediate one. The goals are actually the ways in which the response to the need should be made, and do not necessarily direct long term change or development. The means to the end

TABLE IV-10

Goal Initiative		Goal Decision	
Public pressure, public articulation of needs	55.9%	Congress and/or the Executive	66.2%
Federal Government/ agency, commission	20.6	Federal agency or commission	25.0
Special interests/ business or preservation lobbies	16.2	Compromise	1.5
No specific source - part of the fabric of society	5.9	None - part of society	5.9
No answer	4.4	No answer	4.4
N = 68	100.0%	N = 68	100.0%

is the goal, not the end itself. It is an incremental view of the planning process, the same concept discussed previously in postulating that most of the interviewees saw themselves as consultants. (These comments also apply in the less frequent case where the initiative was felt to come from the special interest groups.)

The other main method given reflects the rational-comprehensive model concept that goal setting is wholly a governmental prerogative. Federal agencies, or commissions, make a study of a general pattern of needs or of the nation's progress in some field. From this analysis any necessary new directions for grotwh and change become evident and are made part of the agency's goal structure. The initiative is internal and results from rational choices, not political pressure. The ultimate decision is again out of the public's hands.

A third, quite small group, felt that goals were not set as the result of any identifiable choice by Congress or the agency, though they may be legitimated by them. Rather the objectives are a natural outcome of the interaction of man and the resource base, or come from the pattern of society's behavior and general beliefs. It views change as self directing, and if carried to its logical conclusion, eliminates the need for planning at all.

The two major change processes[76] given above would require quite different minimum[77] planning strategies. If the first operates, the function of the planner is mainly to coordinate[78] the various interests that determine the need and pressure Congress into setting the agency goal. However, because he possesses bureaucratic authority (the ultimate decision is not controlled by the public) and since it is to the agency advantage to maintain the public's interest in and contribution to the planning (the more needs that are raised, the greater the agency responsibility), the planner's actual strategy could go beyond this, to the semi-directive role of the coordinator-catalyst[78]. In the second case, since the community has little or no direct role, the entire planning operation occurs within the agency and the only public participation necessary is to provide information.

Up to this point, the main thrust of the discussion has dealt with national and long range objectives. As already shown, less comprehensive goals were also considered as significant. Further evidence was added by the fact that 94 per cent of the planners said that regional and local objectives influenced their planning, with 90% viewing them as important[16]. Expectedly, they describe very specific means, with the two most common being economic growth and the need to provide projects for flood control, water supply, irrigation, and so forth. Recreation and the environment also received moderate attention. An interesting, though not simply a water related goal, was the desire for autonomy from federal government control.

Obviously, these goals are quite similar to those given by many planners as long range agency goals[7]. Again, the indication is that while certain national objectives may officially guide programs, the perceptions and allegiances felt at the field level are actually restricted to the needs of the local community. Actually, these may best be described as "wants" rather than needs. They represent the limits of local desires, and are not necessarily subject to any objective criteria, of real value added, to be considered valid. The important issue is how a conflict between these local demands and the national interest is resolved[17]. Here the planners' view attributed the majority control to the regional or local groups[17].

A pragmatic outlook emerges. When broad goals are considered alone, the decision can rest with national spokesmen. But, faced with local demands, the reality[79] for a planner is that they must be met first, since this is where program support lies.

The response calls into question the structure of national objective based planning, especially the measurement of benefits "to whomsoever they accrue." A project's impact is locally concentrated and has very diffuse impact nationwide. If the planners' goal weighting is valid and carries over into their plans, then the most effective results will be achieved at state and local levels.

QUESTION SUMMARY--CHAPTER IV

1. Q. G93 "A plan is many things to many people. What do you think a plan is?" (Full listing in Appendix 3)

Means to an end	58.0%	
Blueprint	30.4	
Analysis	11.6	
	100.0%	N = 69

Features:

Contains goals	24.6%
Works to needs	47.8
Analyzes alternatives	26.1

2. Q. G94 "What distinguishes a "good" plan from a "bad" plan in your opinion?"

Features of a "good" plan:	1. First Choice	2. Second Choice	3. Total
"Good planning"--considers all alternatives, flexible, comprehensive, etc.	(1)= 46.4%	21.7%	(1)= 68.1%
Achieves its objectives, is realistic.	(2)= 21.7	13.1	(3)= 34.8
Economically feasible, technically sound.	11.6	30.4	(2)= 42.8
Meets public needs and desires; fulfills commonly held objectives.	(3)= 14.5	17.4	31.9
Well presented, lucid.	2.9	8.7	11.6
Makes the optimum use of resources; causes minimum damage	2.9	7.3	10.2
N = 69	100.0%	98.6%	198.6%

Note: The numbers beside the percentages (as (1)= 46.4%) indicate the rank of that alternative.

3. Q. S96 "How would you improve the present planning process?"

Increase the resources per study	33.9%
Use planning teams, improve planners skill levels, more multidisciplinary concepts	20.6
Improve policy, evaluation criteria	13.2
Increase planner/field autonomy	10.3
Improve coordination/communication	10.3
Improve leadership	4.4
Reorganize agency structure	2.9
No answer	4.4
N = 68	100.0%

4. Q. G134 "Another important aspect of goals is what you feel the objectives of the planning process are. From the list, choose the three that best describe the purpose of your planning."

	Percentage of those ranking the alternative as:			
	1st Choice	2nd Choice	3rd Choice	Summary*
Directive				
(a) To prepare a document describing project alternatives	(3)=13.0%	21.7%	16.0%	(3)=50.7%
(e) To show a way to achieve socially useful results	4.4	7.3	8.7	20.4
(g) To show ways to achieve economically useful results	4.4	17.4	24.6	46.4
(i) Implement plans/optimum cost effectiveness/course of action	1.4	1.4	1.4	4.2
	23.2%	47.8%	50.7%	121.7%
Service				
(c) Meet the agency's responsibility to the public	(2)=21.7%	16.0%	23.2%	(2)=60.9%
	21.7%	16.0%	23.2%	60.9%

Non-Directive				
(b) To provide a basis for meeting future water needs	(1)= 45.0%	21.7%	7.3%	(1)= 74.0%
(d) Standard to measure progress to water resource goals	8.7	10.2	13.0	31.9
(f) Anticipate change	0	1.4	0	1.4
(h) Illuminate alternative futures	1.4	2.9	5.8	10.1
	55.1%	36.2%	26.1%	117.4%
N = 69	100.0%	100.0%	100.0%	300.0%

* The direct sum of the number of choices of any one alternative. A weighted sum could have been used, reflecting the effects of 1st, 2nd choices, etc., but tests showed that it wouldn't have significantly changed the ordering of the marginal percentages relative to each other.

4a. Q. P24 "A water planner can serve a number of purposes in the course of his work. From the list of possible roles that a planner could assume, choose the three you feel are most important."

	Percentage of those ranking the alternative as:			
	1st Choice	2nd Choice	3rd Choice	Summary
Directive				
(b) He should actively promote the project he is working on	10.0%	8.6%	4.3%	22.9%
(d) He should educate the public about the possible consequences of water resource planning	(3)= 12.9	32.9	18.6	(2)= 64.3
(e) He should have the decision-making power to determine the direction and type of development needed	(3)= 12.9	4.3	20.0	37.1

	1st Choice	2nd Choice	3rd Choice	Summary
(f) He should initiate change whenever he sees progress slowing down	2.9	14.3	10.0	27.1
(h) Independently form a plan - get project completed	0	1.4	1.4	2.9
	38.6%	61.4%	54.3%	154.3%
Service				
(a) He should serve in a technical capacity only	2.9%	0 %	2.9%	5.7%
(g) He should act to serve the public	(1)= 38.6	8.6	5.7	(3)= 52.9
	41.4%	8.6%	8.6%	58.6%
Coordinate (Non-Directive)				
(c) He should coordinate all agencies and interest groups involved in any project	(2)= 20.0%	30.0%	37.1%	(1)= 87.1%
	20.0%	30.0%	37.1%	87.1%
N = 70	100.0%	100.0%	100.0%	300.0%

4b. Q. P25 "Which of all these descriptions (P24) most nearly fits your present job?"

Directive		
(b)	Promote project	10.0%
(d)	Educate public	1.4
(e)	Decision-making power	7.1
(f)	Initiate change	2.9
(h)	Independently form plan	1.4
		22.9%
Service		
(a)	Serve in technical capacity	18.6%
(g)	Serve public	22.9
		41.4%

Coordinate			
(c)	Coordinate all interests	35.7%	
		100.0%	N = 70

4c. Q. P27 "Would you comment on your level of emotional involvement in the success or failure of the plans you work on?"

High - Moderate Involvement		
Highly involved	34.3%	
Moderately involved	28.6	
Try to be detached but fail to do so	4.3	
	67.2%	
Neutral or Low Involvement		
Somewhat detached	21.4%	
Completely detached - objective	10.0	
	31.4%	
Disillusioned	1.4%	
	100.0%	N = 70

4d. Q. P29 "Do you feel that the ideas and opinions of the field planner get much expression in the policy of your agency?"

Yes - 51.4%; Sometimes - 8.6%; No - 34.3%
Don't know - 5.7% N = 70

Yes - "How?"	
Through planning decisions, review comments	32.9%
Written, verbal suggestions, minority report	22.9
	55.6%
No - "Why not?"	
Work strictly to manuals, set procedures, no opportunity to exercise initiative	11.4%
Lack of communication channels, length of chain of command	20.0
Policy should be a Washington level function - field lacks time and ability to make policy	7.1
	37.1%

4e. Q. P30 "Do you think that the field planner should be in a position to influence policy?"

Yes - 88.6%; No - 8.6%; No opinion/Don't know - 2.9%   N = 70

Yes - Why?

Closest to problems - understand local feelings best	50.0%
Policy affects field plans, and is most affected by field decisions	15.7
Field planner's competency is high	11.4
Policy is part of planner's daily task	5.7
Give planner incentive, motivation	4.3
No answer	1.4
	88.6%

No - Why Not?

Field competency limited	7.1%
Policy should be made in Washington	1.4
Go by experience	1.4
Field impotent	1.4
	11.4%

4c. Q. P32 "Do you think it is necessary for a water resource planner to have an engineering background?"

Yes	40.0%	
Yes - at present, not in the future	2.9	
Yes - engineering training, not a degree	5.7	
Yes - because system works this way	1.4	
	50.0%	
No, not necessary but, nevertheless, helpful	15.7%	
No	34.3	
	50.0%	N = 70

4g. Q. P35 "Who should lead such a (multidisciplinary planning) team?"

Engineer	42.9%	
Best leader - independent of discipline	50.0	
Economist, social scientist	7.1	
No answer	1.4	
	100.0%	N = 70

5. Q. G131 "Do you prefer to work under a set of specified goals, or would you rather have the freedom to respond to needs as they arise?"

   Goals - 27.6%; Both - 7.3%; Needs within goals - 11.6%; Needs - 53.6% N = 69

6. Q. G124 "Is your agency's planning directed by a set of long range goals?"

   Yes - 52.5%; Yes, but they change - 2.9%; Limited, unwritten or set own on each study - 8.7%; No - 29.0%; Don't know - 8.7% N = 69

7. Q. G125 "Would you describe these goals?" (G124)

Multiple objectives/SD 97 goals	13.0%	20.4%	
Economic development	11.6	18.2	
Management of the resource	1.4	2.2	
Service - meet needs	17.4	27.4	
Means/functions (w/s, f.c., irrig., etc.)	18.8	29.6	
Self preservation	1.4	2.2	
N = 69	63.6%	100.0%	N = 45

8. Q. G107 "Has there been any legislation in the past 10-20 years which has significantly changed the quality of water resource planning? Describe what it was and its effect. Which laws were most important?"

Water Quality Acts	54.4%
1969 Environmental Policy Act	33.8
Recreation Act	25.0
Water Resource Planning Act of 1965	23.6
Senate Document 97	16.2
Water Supply Acts	14.7
Fish and Wild Life Acts	14.7
Flood Control Act of 1958 (multiple purpose projects)	7.3
Requirements for interagency coordination	7.3
Flood plain authority - flood insurance bills	5.9
Regional studies (Chesapeake/Appalachia)	4.4
Beach Erosion and Navigation	4.4
State Legislation (non Federal acts)	4.4
PL 89-72 - Makes f.c. and recreation nonreimbursible	2.9
Establishment of Water Research Institutes at Colleges	2.9
Preservation of Historical Sites	1.5
Land and Water Conservation Acts	1.5

Operation Foresight (Emergency Flood Protection)	1.5	
Wild Rivers Bills	1.5	
Small projects authority	1.5	
Small watershed development	1.5	N = 68

Frequency of number of bills mentioned by each planner:

0	20.6%	4	20.6%	
1	0	5	20.6	
2	14.7	6	5.9	
3	19.1	7	1.5	
			100.0%	N = 68

9. Q. G 126 "Here is a general list of possible broad economic goals to be sought in water resource planning. Choose the three that you consider most important and rank them. Add any you feel are omitted."

Q. G 127 "Here is a general list of possible broad environmental goals to be sought in water planning. Choose three and rank."

Q. G 128 "From the six goals you chose above pick the three you feel are most important and rank them."

WATER RESOURCE GOALS

		Q. G126 & G127 Individual Choices		Q. G128 Overall Ranking	
		1st choice	Sum of 3 Choices*	1st choice	Sum of 3 Choices*
10.	Q. G126 Economic Goals				
A	Maximize national economic growth	(1)= 39.2%	(1)= 69.6%	(2)= 23.2%	(2)= 47.8%
	Maximize regional economic growth	(3)= 8.7	(2)= 66.7	2.9	24.6
	Maximize local economic growth	5.8	44.9	4.3	8.7
B	Maintain the resource base (recycle)	(2)= 37.7	(2)= 66.7	(3)= 13.0	(3)= 44.9
	Redistribute income from rich to poor	0	5.8	0	0
	Promote national defense	0	5.8	0	2.9
	Control the growth of regions	4.3	33.3	0	5.8
	Other - equity/help underdeveloped areas	4.3	7.2	1.4	5.8
	- local needs/control growth/provide amenable life style				
	N = 69	100.0%	300.0%		
11.	Q. G127 Environmental Goals				
B	Control population growth	(3)= 10.2%	33.3%	10.2%	18.8%
	Other - redistribute population	0	1.4	0	0
	Supply recreational opportunities	5.8	(3)= 53.6	2.9	10.2
C	Enhance and improve the environment	(1)= 71.0	(1)= 94.2	(1)= 34.8	(1)= 76.8
	Enhance fish and wildlife	0	11.6	0	2.9
	Ensure ecological principles are met	(2)= 11.6	(2)= 69.6	7.2	(3)= 44.9
	Preserve unique natural areas	1.4	36.3	0	5.8
	Preserve unique historical areas	0	0	0	0
	N = 69	100.0%	300.0%	100.0%	300.0%

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* The Sum column is the total percentage of those ranking the alternative as their 1st, 2nd, or 3rd choice.

12. Condensed Categories

	1st choice	Sum of 3 choices
A - Economic growth emphasized	30.4%	81.1%
B - Management emphasized	27.6	88.5
C - Environment emphasized	42.0	130.4
N = 69	100.0%	300.0%

13. Q. G129 "What goals do you feel are overemphasized or not being met at the present time?"

	Overemphasized	Not being met
Environmental	28.0%	51.5%
Economic	44.1	14.7
Social	1.5	2.9
Population control	4.4	10.3
No answer	22.0	20.6
N = 68	100.0%	100.0%

14. Q. G133 "In Senate Document 97, a general goal states that overriding all other objectives must be considerations protecting 'the well being of the people' or 'the common good'. What do you think these terms mean?"

	1st choice	2nd choice	Summary
Human or individual considerations (health, happiness, rights, etc. emphasized)	57.0%	4.6%	61.6%
Good of the majority or the nation	21.6	12.3	33.9
Local needs guaranteed	6.1	3.1	9.2
Protect the environment	4.6	15.4	20.0
Economic good	1.5	12.3	13.8
Make plan futuristic	3.1	1.5	4.6
Catch-all safety valve	4.6	13.8	18.4
Don't know	1.5	--	1.5
N = 65	100.0%	62.0%	162.0%

15. Q. G130 "With respect to the formulation of goals such as those above, how do you believe they are arrived at?" (Ref. Q. G126, G127)

Goal Initiative	
Public pressure/publicly articulated needs	55.9%
Federal Government/agency/commission	20.6
Special interests/business or preservation lobbies	16.2
No specific source, part of fabric of society	5.9
No answer	4.4
N = 68	100.0%

Goal Decision	
Congress and/or Executive	66.2%
Federal agency or commission	25.0
Compromise	1.5
None, part of the fabric of society	5.9
No answer	4.4
	100.0%

16. Q. G132 "Do regional and local objectives affect your planning?"

Yes - 94.1%; Unsure - 1.4%; No - 4.4%. N = 68

"Are they important?"

Yes - 89.7%; Sometimes - 1.4%; No - 2.9%; No answer = 5.9% N = 68

"What are they?"	1st Choice	2nd Choice	Total
Economic growth	41.2%	19.1%	60.3%
Means/functions (W/S, f.c., irrig., etc.)	44.1	20.6	64.7
Environment/recreation	5.9	28.0	33.9
Local/regional autonomy	4.4	8.8	13.2
Planning service	0	2.9	2.9
No answer	4.4	--	4.4
N = 68	100.0%	77.4%	177.4%

17. Q. G132 "How do you resolve conflict?" (Between local and national goals.)

National viewpoint		Local viewpoint	
. national spokesman	17.7%	. local/state interests	38.2%
. agency decides	13.2	. compromise	16.3
. economic criteria	4.4	. no conflict--goals same	5.9
. Congress decides	1.4		
	36.7%		60.4%
		No answer	2.9%
			N = 68

18. Q. G22 "As a water resource planner, you must have some personal reasons for choosing this profession. What do you feel are your primary reasons for this choice?"

	Primary Reason	Second Choice	Total
Convenience: force of circumstance, suits personal abilities	50.0%	14.3%	64.3%
Pride: challenge, initiative needed, interdisciplinary stimulation, policy involvement	20.0	44.3	64.3
Service: water planning needed, relevant, help conservation, public interest, community involvement	17.1	27.1	44.3
Self-interest: wages, promotion, travel, variety of experience	12.9	17.1	30.0
N = 70	100.0%	102.9%	202.9%

19 . Q. G23(a) "Have you been satisfied with your choice of occupation?"

Yes - 88.6%; Ambivalent - 8.6%; No - 2.9% N = 70

Reasons:

Satisfaction		Dissatisfaction	
Pride	30.0%	Task complexity	7.1%
Service	22.9%	Task narrowness	1.4
Self-interest	11.4	Agency goals wrong	1.4
Convenience	10.0	No answer	1.4
Educational	8.6		
No answer	5.7		11.4%
	88.6%		N = 70

20. Q. G23(b) "What other profession would you consider given the choice again?"

No answers - 44.3%; None other - 15.7%; Other branches of engineering - 18.6%; Medicine/dentistry - 15.7%; Law - 8.6%; Teaching - 8.6%; Urban planning/architecture - 7.1%; Natural sciences - 7.1%; Business - 5.7%; Physical sciences - 2.9%; C.P.A. - 1.4%; Journalism - 1.4%; Pharmacy - 1.4%; Flying - 1.4% N = 70

NOTES--CHAPTER IV

21. Francine F. Rabinowitz, *City Politics and Planning*, Atherton Press, 1969, Chapter VI.

22. Martin Rein, "Social Planning: The Search for Legitimacy", *Jour. Am. Inst. Planners*, Vol. 35, No. 4, July 1969, p. 233.

22a. General notes about all statistics used.

(a) The summarized answers to all questions used in a chapter are listed in a "Question Summary" at the end of each chapter. General footnotes follow directly after the questions, numbered consecutively. Tabulation of the original, unreduced response categories are published under separate cover, available through the Engineering-Economic Planning Program, Civil Engineering Department, Stanford University.

(b) All percentages quoted in the text will be rounded to the nearest whole number. The sample size, unless specified otherwise for certain questions was 70. Thus each individual represents 1.4% of the total. (1 = 1.4%, 2 = 2.9%, 3 = 4.3%, 4 = 5.7%, 5 = 7.1%, 6 = 8.6%, 7 = 10%)

(c) For open ended questions the percentages quoted are normally those made up by the most important responses to each question. These categories are mutually exclusive and will sum to 100%. However, commonly more than one answer was given to each question. These secondary choices were also recorded. (See Chapter III, Survey, "Data Coding and Analysis" for more details.) Occasionally a quoted answer will give the total percentage of responses to a category, which will be the sum of the most important or initial answer, plus the secondary choices. In this sum, the category percentages are no longer mutually exclusive and will sum to more than 100%. See for example Q. G94 in the question summary.

The most important response percentages are given in column 1, and sum to 100%. Secondary responses given in addition to the major answer are tabulated in column 2. The total percentage of times any particular response was given, is the sum of 1 and 2, given in column 3. Normally, the relative importance of the larger categories is unchanged between column 1 and 3. The smaller groups, however, may and commonly do change in relative magnitude. Usually, sums will be omitted unless they significantly change the balance of the primary choices, or it is the total response which is more meaningful in the analysis and discussion.

23. 35 - 45 years old.

24. Essentially the rational-comprehensive process model, described in Chapter II.

25. See the definition of "a planner" in Chapter III, "Survey".

26. Charles E. Lindblom, *op. cit.*
See also Chapter II, "Planning Process".

27. Such as the 1 year "Planning Associates" program of the Corps or some of the University based planning schools, as at Stanford, Wisconsin, Cornell, etc.

28. Since the ultimate, actual results lie in the future, only the potential effects and the motivation the plan displays can be used as assessment points.

29. This dichotomy was placed directly before the planners in Q. G131:[5] "Do you prefer to work under a set of specified goals or would you rather have the freedom to respond to needs as they arise?"

Although this question was biased by the word "freedom" as applied to needs, the emphasis that planners respond to, and prefer to work to satisfy a "need", rather than work under a set of goals or guidelines is clear. The reasons given for the choice emphasize this. 46% stated that satisfying needs gives planners the greatest flexibility, they are able to best express their individuality and that having goals restricts the alternatives available. Another aspect to needs was that they were felt to lead to action rather than just documents or words, needs have an immediacy that goal directed planning lacks (9%), The main reason given for the goal choice (22%) was that goals are needed to give planning a direction, to ensure that the overall task is kept in perspective.

30. In the distinction being made here between goals and needs, there is no attempt to diminish that planning operates to satisfy needs and solve problems. Most legislation controlling water resource planning opens with a phrase that the overall objective being pursued is to meet the needs, short and long term, of the public. The point that requires clarification, is that a need should not, or cannot be determined without reference to some goal. To identify a need, there must be a public objective which is not being attained. A performance gap or discontinuity is created, causing friction or pain to somebody, who then brings it to public attention as a need. Thus simply to talk of meeting needs or solving problems, without reference to the goals which caused them, indicates a limited understanding of the full nature of planning.

For example, if the goal is the preservation of life, because we hold it sacred, then a loss of life caused by a flood raises the need for flood control measures to prevent further loss. If life was not highly valued, then no goal to preserve it would exist. The loss of life by floods would then not create a problem, and no dams for that purpose would be needed. If the goal is maximum economic growth, the existence of unused resources makes it possible that their development would boost the economy. This creates a need to find means to exploit them for this purpose. If the goal was preservation, then the economic "need" would vanish, and be replaced by a "need" to find means to stop possible changes.

31. This division is a little uneasy. The categories are certainly open to interpretation.

32. A comprehensive discussion of the question of sources of legitimacy of planning, and possible strategies to combine them for optimum effect in different circumstances is given in the article by Martin Rein, op. cit. The sources he mentions are the authority of expertise, bureaucratic position, consumer preferences and professional values. Legitimacy strategies proposed for social reform are the concensus of elites, rational analysis and citizen participation.

33. Fifty per cent of the sample felt that an engineering background was necessary to qualify a water resource planner (Q. P32)[4f] and 43 per cent said that an engineer should lead any planning team (Q. P35)[49].

34. Using only the first ranked responses, 1st column, Table IV-2.

35. N = 69, Chi Square = 11.67, 4 degrees of freedom, level of significance = 0.02. (i.e., only 1 in 50 times is the relationship expected to be simply a chance occurrence.). The significance level of all tables will be quoted in the notes. For clarity, all tables are given in the actual numbers of responses, rather than percentages.

As a general rule, in all tables presented, major values that are higher than would be predicted by chance, will be underlined. The expected or chance value for any cell is calculated as follows:

In a 3 x 2 table, for example:

A	B	C	A+B+C
D	E	F	D+E+F
A+D	B+E	C+F	A+B+C+D+E+F = N

The expected value in the upper left cell, say X_1 is:

$$X_1 = \frac{(A+D) \cdot (A+B+C)}{N}$$

and in the lower left cell, say Y_1 is:

$$Y_1 = \frac{(A+D) \cdot (D+E+F)}{N}$$ and so forth.

Sidney Siegel, Non-Parametric Statistics for the Behavioral Sciences, McGraw Hill, 1956, p. 97.

36. N=69, Chi Square=10.06, 2 degrees of freedom, level of signif.=0.01.

37. N=67, Chi Square=5.37, 2 degrees of freedom, level of signif.=0.10.

38. N=67, Relationship not significant.

39. N=67, Chi Square=10.88, 2 degrees of freedom, level of signif.=0.01.

40. N=66, Chi Square=4.62, 2 degrees of freedom, level of signif.=0.10.

41. Which would indicate that nearly a fifth of the sample saw themselves as performing a function with somewhat less than the initiative that our definition of a planner demands. Again, although we sought to sample only those beyond the strictly technical phases of planning, some were obviously included.

41a. N=70, Chi Square=12.15, 4 degrees of freedom, level of signif.=0.02.

41b. N=70, Chi Square=13.42, 2 degrees freedom, level of signif.=0.01.

41c. N=66, Chi Square=6.19, 2 degrees of freedom, level of signif.=0.05.

42. Anthony Downs, *op. cit.*, p. 82-85.

43. Though as Downs points out, these are not all "pure" in the same sense as the self interest goals. Loyalty, pride and program emphasis are mixed motives, since they can, and usually do contain elements of self interest as well as altruism.

44. Anthony Downs, *op. cit.*, p. 88-89.

45. For instance, when their ultimate grade objectives were compared with their current level, no extreme ambition was found. Many GS-11 and 12's were content to remain so, and most viewed their limits as in the next available group, GS-13 and 14, mainly GS-13. The GS-13 and 14's were a little more promotion minded, most seeking at least a GS-15, but a number also accepted the fact that they would go little further.

Q. G16 "What is the highest position in the organization you think you will ultimately achieve? What GS level?"

Q. G16 Ultimate Grade Ambition

D. *Present Grade*	GS 11&12	GS 13&14	GS 15+	
GS 11&12	10	24	9	43
GS 13,14,15	0	11	14	25
	10	35	23	68

46. Hopefully agency and community goals are the same. Officially this is usually so, however certain unwritten, or "hidden agenda" goals of an agency, such as that it should grow, etc., may show considerably more self interest.

47. Of course, to ensure an unidirectional coordinated policy, all planners should be aware of the same goals.

48. Senate Document 97, op. cit.

49. Water Resource Planning Act, PL89-80, August 1965.

50. National Environmental Policy Act of 1969.

51. N=70, Chi Square=11.0, 2 degrees of freedom, level of signif.=0.01.

52. N=70, Chi Square=5.35, 2 degrees of freedom, level of signif.=0.10.

53. N=69, Chi Square=9.69, 2 degrees of freedom, level of signif.=0.01.

54. A good question is whether or not a detailed knowledge and understanding of agency goals should have been expected. At certain levels it would be irrational for individuals to give the time to absorb details of bureau activities (Downs, op. cit., p. 237-8). All that is needed is acceptance of the broad viewpoint, or ideology, of the agency. Are GS-11&12 planners of sufficient influence to require more than such general orientation? The rationale for this study makes just this point. Where any significant degree of influence exists, or is potentially available, which is true for the planners surveyed, comprehension of the entire goal structure is necessary.

55. Anthony Downs, op. cit., p. 223.

56. "Conservation" as used in its fullest sense, not just as in its recent identification with the preservation-conservation movement.

57. It was not very clear whether this choice demonstrated a "true" conservation philosophy, or was caused by identification with the explanatory phrase "recycle resources" in the statement, which has had so much media popularization recently.

58. As one planner put it, "to be against that you would have to be against motherhood and apple pie!" Questions, G126, G127, G128, and G129 were, in general, all subject to the problem of planners giving us the answers they felt were most acceptable today, or that we wanted to hear, rather than what they really believed were important.

59. The National Environmental Teach-In, or "Ecology Day" was held April 22, 1970, during the first week of our field interviews.

60. A Gallup Poll taken at the same time as the survey indicated that reducing pollution of air and water ranked second only behind crime and ahead of several economic measures as the public's chief concern.

61. Using first choices only. (Table IV-7) (Notes Nos. 10, 11, 12.)

62. N = 69. Relationship not significant.

63. As was also found in Chapter VII, "Nature". See the discussion of the Environment, and the "Nature and the Public" section.

64. As most of these answers followed the categories of G126, G127, the emphasis on social goals given was probably more limited than that actually held by the planners.

65. N=69, relationship not significant.

66. N=69, relationship not significant.

67. N=69, Chi Square=5.99, 2 degrees of freedom level of signif.=0.05.

68. N=53, Chi Square=6.37, 2 degrees of freedom level of signif.=0.05.

69. N=53, Chi Square=5.44, 2 degrees of freedom level of signif.=0.10.

70. N=53, Chi Square=9.11, 2 degrees of freedom level of signif.=0.02.

71. West--all offices west of Dallas.

72.

Q. G129 Overemphasized goals	Location		
	West	East/Midwest South	
Economic	22	8	30
Environmental	11	8	19
Social	1	3	4
	34	19	53

73. Senate Document 97, *op. cit.*, p. 2.

74. Water Resource Council guidelines, *op. cit.*

75. "Executive" here denoting the Office of the President and Cabinet level decision makers. The agency is below this.

76. No conclusive judgment as to which is more valid can be made. Each operates under certain instances.

77. The strategy chosen depends also on why the public is included. If it is just done for appearances, or to expedite the plans, a minimum involvement will be sought. If it is to provide the public a real degree of control over the planning, any strategy with greater participation could be used.

78. A. Bruce Bishop, *op. cit.*, Chapter III.

79. A reality which predictably increased with age and experience. The younger, less experienced men were still idealistic enough to believe that the national good was paramount, while those over 40 and with more than 5 years agency experience were far more likely to accept a compromise or local control.

			Q. G132 Goal Resolution		
			National Control	Local Control	
Age[80]					
	Years	under 40	17	19	36
		40 & over	8	22	30
Agency experience[81]					
	Years	under 5	11	5	16
		5 & over	14	36	50
			25	41	66

80. Relationship not significant

81. N=66, Chi Square=6.92, 1 degree of freedom, level of significance = 0.01.

CHAPTER V

SOCIO-POLITICAL ENVIRONMENT

Planning has no intrinsic value. It is given meaning only through the people it affects and by the way it determines their future. Without reference to the social environment it serves, and by which in turn it must be controlled, it is worthless.

The fundamental act of planning is to make decisions. As Simon[26] pointed out:

> "...the process of decision does not come to an end when the general purpose of an organization has been determined. The task of 'deciding' pervades the entire administrative organization quite as much as the task of 'doing'..."

Further, the range and type of decisions involved in planning are broad and varied. A common distinction is that made between policy and administrative issues, although it is often difficult to clearly differentiate the two. Administrative decisions always carry some policy implications, but there is certainly some hierarchy of choice.

These factors raise a question that all planners must answer. Who should make decisions? Who has the responsibility and the right to impose their values on others?

It is an important choice for several reasons. It reveals to whom, and for what reason, the individual gives his loyalty. The coice is a prerequisite to the selection of a planning strategy, since it reflects the planner's assessment of who makes the decisions, and the measure of control available at the different levels. Acceptance of the ability and motivation of the various authorities will also be necessary.

There are many possible decision makers in water resources, the public, the Congress, the President, administrative agencies, special interest groups, state and local government, regional commissions and individual planners. Four received particular study; the public, Congress, the agencies, and the planner. Because of the current demands for greater involvement of the general citzenry in planning which affects their welfare, attitudes towards, and opinions about the public and their possible role, received the most attention. A major omission was that too little time was given to the decision functions of states and regional authorities.

The Public

Because of the frequent use of the phrase "the public," it is necessary to establish just who this term connotes. Who is included in, or constitutes, the public?[3]

The majority (over 60%) felt that the public were expressly those people within the region covered by the plan, or those directly affected by any proposed project[3]. This would normally range up to the extent of a river basin and include those who would benefit (or be penalized), individuals interested in the project, and those who receive official notification of the agency's proposals. Around half of the planners (the two groups were not mutually exclusive) were less specific, defining the term to mean "everybody," the general taxpayer, or simply all those outside government.

The ease or glibness with which these latter answers could be given diminishes the impact of their more general view. The image held was apparently mostly that of a limited population, essentially those living in the region served by a particular planning office, and included individuals rather than organized groups or the bureaucracy. The idea of serving all of the people, or the nation as a whole, was not strongly held. The relative environment was statewide, rather than national in scope. The concern felt probably represents the product of a pragmatic appraisal of just whose needs the local office can hope to serve (and from whom it gains support for its proposals), and the individual's natural parochialism.

The above was reinforced by the responses to two questions asking the planners to spell out the public groups or interests they would take account of[1], and any they felt were not sufficiently considered[2], during the planning process.

Geographically, the emphasis given was on regional, state and local or city organizations. National agencies or interests were the first choice of less than twenty per cent on either question. Of the groups which would be included, those at the local level (city councils, irrigation and flood control districts, businessmen and conservationists) were the most frequently mentioned (44%). State agencies ranked second (31%)[1].

Planners' relative environments were restricted in more than just an areal sense. Examining the same questions[1,2] for the function or type of interests seen as presently represented in planning, a strong emphasis on other resource agencies was found. Over 80 per cent of the groups given were part of the federal, state or local government structure. Only ten men said that their primary contact was with organizations of private individuals, conservationists, taxpayers or ad hoc committees. Reinforcing this point, the people whose views were given as being inadequately represented were normally outside the bureaucracy (individual taxpayers (29%) and informal, or ad hoc organizations (20%)). Nobody felt that any agency was being omitted.

The indication is that within organized planning interests, there is a limited, or closed, set of professionals involved, whose communication is largely confined to one another. Without considerable resources or influence, individuals and private groups would find it difficult to penetrate their deliberations, much less modify their recommendations. Thus, though the public being served is mainly composed of private individuals, it is not their viewpoint which receives the majority of the planners' outward attention, but that of their fellow bureaucrats[27].

While sympathizing with the desire to conserve their efforts, it is questionable whether in today's context, limited public horizons, geographically or by organization, are actually available to planners. They are supposedly bound to consider the national economic good. More importantly, the social and environmental influence of projects often goes beyond river basin or state boundaries, and the need is for national (in the future, perhaps even world wide) coordination of plans to ensure an effective approach to solving problems. The field planner's responsibility toward a broader sphere, a multi-state, or national public, is more important now than ever before.

Further, given current demands for more representative and publicly responsive plans, the need for informal and grassroots inputs independent of institutional preconceptions and demands is growing. The reasons for the planners apparent rejection of attempting a mass public contact goes beyond its high cost and difficulty. They also reflect the generally low opinions of the planners toward the possible contributions the public or other nonprofessional decision makers can make to water resource plans.

Image of the Public

The attitudes held about the public (accepting this term to denote the individual citizens of a state or region) were decidedly negative (Table V-1).

TABLE V-1

Planners' Opinions of the Public[4]

Ability	Agree	Unsure /Maybe	Disagree
a. Competent to make technical judgments?	12.9%	2.9%	84.3%
e. Well informed on water planning issues?	25.7	11.4	62.8
Objectivity			
d. Not easily swayed by emotional arguments?	2.9	1.4	95.7
Motivation			
b. Highly interested in public works?	55.7	8.6	35.7
f. Unselfish?	14.3	11.4	74.3
Structure			
c. Cohesive over interests affecting their welfare.	34.3	2.9	62.8

The public's abilities were regarded as being very limited. Over four fifths of the planners said that people generally lacked competence in technical areas and nearly two thirds that they were unaware of the issues involved in a planning decision. The implication of these attitudes is that since there is little benefit to be gained by including the views of those considered unable to understand the plans, the pressure to seek out a public input is low.

The possible causes for such perceptions are two fold. The limited nature and imperfections in the current methods used by the agencies to include the public in planning[27a], and the consequently restricted contact between the planner and individuals in the community, may have resulted in the planner developing a low estimation of their ability to help him. Secondly, though the general information media today are highly efficient, there is no guarantee that the public is, in fact, any more aware or competent than previously. Part of the responsibility for any limitations in their ability, however, lies with the agencies, through their failure to fully use the means available to give the public sufficient information or analysis of project consequences upon which to base a worthwhile judgment.

Actually, a vicious cycle operates. The lower the planner's opinion of the public, the less information they are given, the greater their inability to comprehend plans and the lower their incentive to participate. Consequently, public pressure to be heard is smaller, their frequency of contact with the agency is reduced, as is their planning impact, and the lower the planner's opinions of their views.

The only way to break out of such a spiral is to attempt to include their views in plans while at the same time educating them about the planning goals and consequences. It will be a hesitant and costly process. However, since the public was marginally felt to be interested in water resources, their assimilation of such data, and feedback of opinion could at least be considered probable, which is incentive enough to try. The potential gains in the responsiveness of plans is high.

A possible obstacle to planners' acceptance of such an attempt is the low opinion held of public objectivity. Their susceptibility to emotional, nontechnical argument, was accepted without reservation by 60 per cent of those sampled, and at least partially by all but three men[4]. Planners, on the other hand, prefer to assume a neutral or independent position. The mass of subjective analysis within a plan is condensed to provide a numerical tradeoff, such as the benefit-cost ratio, whose influence is assured by its endorsement by Congress. Yet, if the public (whose needs are to be met) can be convinced of a project's worth by nonquantitative arguments, then perhaps more emphasis on such issues is justified. Planners need to be shown that qualitative evaluations may be at least as valuable as that which has frequently become an artificial numerical exercise[27b].

Compounding the problem of persuading planners of the value and practicality of community involvement in water management was the view that the public lacks organization. They felt that even when the community's own welfare was directly involved, the public's cohesion, or singleness of purpose was low. The problem is how to get a coordinated viewpoint from a heterogeneous public. Since they apparently represent no monolith of opinion in the planners' eyes the pressure to include their viewpoint in a plan is small.

Finally, although a majority conceded that the public were interested in public works, they were also classed as being generally selfish, rather than concerned about the general welfare[4,28,29]. Such perceptions may be accurate, but they carry a negative connotation. They do not augur well for planner or agency acceptance of community control of planning, especially since these perceptions apparently color planners' attitudes toward different decision makers. It was evident that when positive motives were attributed to the public, goal resolution was viewed as a local rather than a national function and the ultimate decision on a plan as belonging to the public, states or Congress, rather than the agency or the planner. Where the people were considered uninterested, or selfish, then national or agency or the planner. Where the people were considered uninterested, or selfish, then national or agency control was desired[30] (Table V-2).

TABLE V-2

Public Motivation versus Decision Powers

		Q.S72b Public Interested in Works?[4]			
		Yes	Unsure	No	
Q. G132[31,32] Who should resolve conflict between national and local goals?	National Viewpoint	8	4	13	25
	Local Interests	28	2	11	41
		36	6	24	66

		Q.S72f Public Self Seeking[4]			
		No	Maybe	Yes	
Q. S81f[25,33] Who should decide what the best plan is?	Planner/ Agency	1	5	21	27
	Public/ Congress/ States	9	2	29	40
		10	7	50	67

* Underlined values are those that are larger than would have been expected purely by chance.

The evidence of a variation in these opinions among groups of planners was contradictory. Younger men distrusted the public's motives more than their seniors, but tended to accept their competence. The older, more experienced and supervisory grade individuals believed the public was interested, but were less sanguine about their ability (Table V-3).

TABLE V-3

Public Image Held versus Age, Grade and Experience

Q. S72b Public Interested?[4]

Motivation		Yes	Unsure	No	
		39	6	25	70
D - Age[34]					
Years	Under 40	15	3	18	36
	40 & over	24	3	7	34
D - Grade[35,40]					
Planner	GS-11 & 12	22	6	17	45
Supervisor	GS-13,14,15	17	0	8	25
D - Agency Experience[36]					
Years	Less than 10	16	5	13	34
	10 & over	23	1	12	36

Q. S72e Public Ignorant?[4]

Competency		No	Unsure	Yes	
		18	8	44	70
D-Age[37]					
Years	Under 40	11	5	20	36
	40 & over	7	3	24	34
D-Grade[38]					
Planner	GS-11 & 12	14	7	24	45
Supervisor	GS-13,14,15	4	1	20	25
D-Agency Experience[39]					
Years	Less than 10	11	6	17	34
	10 & over	7	2	27	36

The second trend is easier to explain than the first. Engineering schools now emphasize the role of, and possible gains from, community involvement in planning, with a consequent acceptance among newer graduates of the public's ability in this area. The older men have had less presure to discard the professional's traditional mistrust for a layman's opinions. The longer theeexposure to the limitations of normal communication channels, hearings[27a], public notices, etc., in generating usable public input into planning, the greater the disillusion about public knowledge, or capability to make a contribution. The idea that people today are, on the whole, better educated, is probably stronger among the younger men who actually benefited from the modern system.

It is more difficult to understand the reversal between groups in the attitudes toward public motives, since the pressures mentioned above should still be operative. Possibly, youth's common rejection and reevaluation of society's values and political structures is carried over into a general distrust of the public will by younger planners. Youth is usually activist in outlook and, by comparison, may tend to view the majority of people as passive or uninterested. Older planners have a longer perspective with which to judge the public's influence, and probably tend to see it as averaging out with a positive benefit, or at least as well intentioned.

Public Role

The attitudes expressed so far indicate that planners should prefer the public's role within water management to be a limited one. Thus, the initial reaction to the issue of their inclusion in planning was surprising[5,13]. Sixty per cent said that they felt that the public sbould be more involved[5,41], and about two thirds that they should be given the results of all alternatives which are studied, not just one or two of the most desirable or feasible[13].

However, it was clear that involving and informing the public did not connote control by them. The primary reason given for people to be included was that it was part of their democratic right[6]. Society should know what its government is doing, be aware of anything which affects its welfare, and be informed on the purposes for which its taxes are intended (46%). This motive leaves the individual in the passive role of recipient of the planners' conclusions, rather than participant in their formulation. A few had far more self interested motives. They saw direct public acceptance or endorsement of a plan as the easiest way to expedite its passage through Congress[6]. Public opinion was considered as a means of coercion rather than as a source of information for the planner.

Only ten per cent of the group felt that more public involvement was necessary because an input from the public could be useful to them, or because the public's will should be considered.

Suggested methods given for achieving public participation made the lack of power even more evident[7]. Just two men would have allowed the public direct or partial control over planning, such as through referendums on important questions, or the influence of lobbying organizations. Fifteen per cent said that public help should be sought, but only in an advisory sense. People should give information, serve on committees, submit petitions, answer opinion polls, and so forth, but should not interfere with decisions. The biggest group (37%) thought that if current methods were improved, or used more frequently (more hearings, public notices, etc.) that this would adequately represent the community view.

At best, preference for a strategy of information or placation of the public was indicated. Often they would be co-opted[42], and at worst, simply manipulated[43]. The desire for public involvement was triggered by a desire to create better plans in only a few instances. Mostly the reaction was to find the easiest way to fulfill a legal requirement or agency policy, or to use the public as a means of expediting the plan.

When the issue of public direction of the planning process through the exercise of decision making power was more directly faced[8], the separation in the planners' minds between a general involvement and actual control was made even stronger. Those who said the public should be more involved were only marginally more likely to seek public decision making power[44].

Fifty seven per cent said that the public should not have a decision-making function during the planning process[8]. Of the forty per cent who would have allowed this, none gave methods which involved any direct control leaving the agencies. All saw public decisions as an advisory technique[9]. The most powerful influence conceded was the indirect leverage possible by voters through their votes for, and letters to congressmen (13%). Other means acceptable to planners were public statements at hearings, response to agency questionnaires and committee service (24%). The initiative was felt to belong to the agencies. The public was expected to wait until being asked before they should make their views known[9].

The rationale for limited public power was largely based on the opinion that their competence was not sufficient for them to be given more responsibility (44%)[10,45]. Others held the same view in terms of the necessity for federal agency guidance of water planning to ensure uniform policy[46]. Three men expressed the fear that if the general public was given more control, only the opposition to agency proposals would be interested enough to participate, and that progress would be stifled[47].

Another factor in the rejection of greater outside control was that most planners (87%) felt that the public already possessed a degree of decision making influence[11]. Again, however, its impact was mainly advisory (75%) rather than directive[12]. Commonly it was given as being exercised through the imposition of pressure on elected representatives (46%). This lacks immediate force, but at least demands public initiative. It is obvious that one issue to be resolved in discussing community involvement in planning is just what degree of power should be relinquished.

It is this writer's personal feeling that given enough incentive and opportunity, people will get involved, and that the effort is valuable enough to warrant the high information cost of real public participation[48], since it is an exercise in democracy in its fullest sense[49]. Further, many of the tradeoffs made in planning are so subjective that expertise is not the only qualification for those who should arbitrate over them. Society, or its elected representatives, has the right to determine its own values.

Whether or not the public are in fact willing to make this effort is open to question. Some surveys have shown that many claim to be ready to give substantial time and effort to community programs[50]. Planners, however, are apparently reluctant to believe this, and it forms an important barrier to their acceptance of public decision-making. The only way to overcome such fears or confirm their validity is to experiment with the different means available[51].

The desire for an increased public role was only weakly more manifest among the younger, less experienced planners than in the group over forty years old or with more than ten years agency service[52]. The younger planners were far more likely to see limitations in current agency-public communication than their supervisors. There were no significant differences among those accepting or rejecting public decision making. The greater strength of the belief in public competency held by youth, overcame their own distrust of public motives and the older planners' pragmatism. On the decision-making question, the effects of the conflicting attitudes held were to cancel each other out.

Two other variations in these attitudes were of interest. Corps planners were, on the whole, ambivalent (Table V-4) about more community involvement, which could reflect the current state of flux in this agency's thinking. The evidence is that the Corps is in transition from a construction orientation, to a broader planning philosophy. BuRec planners tended to accept a more traditional attitude limiting the lay input to plans. FWQA, a young organization, without fully established modes of behavior, were overwhelmingly in favor of the widest possible contributions to their planning. In addition, men with the highest demonstrated awareness of the legislation, were most likely to have a favorable view of increased public involvement. Those without such knowledge were against it.

Congress

Because the public interest is involved, the planning of water projects is inevitably a part of the political arena, regardless of planners' claims to objectivity or neutrality. Since Congress has the ultimate power of appropriation over federal water resource agencies, a planner's opinions of Congress may affect his work as much as his attitudes toward the public itself.

The general public does not normally hold "politics" in high esteem. Usually the reaction is that political bargaining is somewhat underhand, but nevertheless necessary. In water resources, the reputation of the "pork-barrel" phenomenon is similarly tainted. Many view it as a mechanism by which congressmen can promote favor with their local districts[61], regardless of cost to the nation as a whole. The outlook is seen as unavoidably parochial[62] and selfish[63].

TABLE V-4

Increased Public Involvement in Planning versus Agency and Knowledge of Legislation

		Q. S68 "Should the public be more involved...?[5]		
		Yes	No	
		42	28	70
D - Agency[59]				
	Corps	24	19	43
	BuRec	7	8	13
	FWQA	11	1	12
Q. G107				
Knowledge of legislation: Number of laws mentioned	0	2	12	14
	1-3	16	7	23
	4-7	24	9	33

The planners' perceptions of Congress were more favorable than this. The largest group (44%) attributed their interest in water planning to a genuine desire to serve the interests of the nation, the public and their constituents[14]. A few expressed a similar view, but couched it in the more specific terms of a desire to promote economic growth. Only around a quarter saw their motives as "political: or mainly self interested, that is, to be re-elected, to gain political power, or to be identified with a popular cause. A number (18%) viewed the effort as a response to public or constituency pressure. It was not clear, however, whether this was considered primarily an act of self protection[63], or a demonstration of a desire to serve those with real needs whose interests congressmen are elected to protect. Both opinions were probably present.

In addition it was felt that Congress served a national constituency (45%) rather than just regional or local interests (28%)[14]. Many planners felt the interests of congressmen were not simply parochial, but went well beyond the welfare of their own districts.

In view of the common negative connotation to political decision making, these attitudes were more positive than expected. Possibly planners wished to vindicate the judgment of those setting the overall direction of their work. Further, when asked whether or not their agency was involved with "pork-barrel" projects, forty-five per cent flatly denied that any such activity existed, and another 15 per cent said that it was extremely rare[64].

Just over a third felt that there was any real truth to the "pork-barrel" concept. The general view was that self-interest decisions are now rare, though the problem was more important earlier. The attitude within Congress itself toward the desirability of projects has apparently changed in recent years. Mainly because of the increased activity of the environmental lobby, large water projects are no longer always considered to be an unalloyed good. Thus, there has been a movement toward a broader consciousness on the part of Congressional and other national decision makers, and the planners' perceptions reflect this change.

One result of this moderate opinion of Congressional motives is that the general attitude toward Congress' control over water development decisions was very favorable. Most planners (84%) felt that Congress should have full, or at least most, of the power to determine the direction of development[15].

The primary reason given (43%) was that since Congress was elected to represent and protect the welfare of the people, they had the legal authority, and the control over the public purse, with which to make such choices[16,65]. Others (12%) saw in them the expertise, broad vision, and sensitivity to public wishes necessary for those who should direct national planning efforts. Three men also sought Congressional control as an effective control over other development agencies and the Executive. A number (10%) were even less idealistic. The reason they gave for Congress to make the ultimate judgments was because there are no alternative decision makers with sufficient authority to replace them. Those against Congressional power felt that their decisions are too self interested (19%), that Congressmen are no more qualified to judge the issues than the public (11%), or that better alternative decision sources may be found in the states, local interests, or in the executive branch (9%)[16].

However, when the issue was restated, a more critical attitude emerged. Nearly half said that water resource policy would be improved if the decisions were taken out of the political arena, with an equal number opposing this view[19]. Those in favor mainly disliked "political" motives, such as the need for re-election, log rolling, the pork barrel, etc. (34%)[20]. Others felt that decisions made outside Congress would be more rational, that the long term viewpoint would receive better attention, and that it would be a more efficient process (7%).

Those who supported political decision making were most impressed by Congress' ability to make valid choices (21%)[20]. They felt that Congress was responsive to the public, that it held a national viewpoint, and that it ensured that benefits accrued to the majority. Thirteen per cent took the pragmatic view. If Congress didn't make the decisions, who else would? Even if there were other arbitrators, there was no guarantee that the results would be any better.

Only seven men had the perception to see that because resource allocation is a political process, its arbitration belongs in the political arena. Bargaining was seen by these men as the legitimate process by which politics should be set. It was felt to be the best means to include the broadest possible spectrum of interests in the ultimate direction of development.

The shift of opinion in the responses to these two questions[16,19], apparently indicates a separation in the minds of the planners between the institution of Congress, and the political decision making process. The institution is accepted as the legal source of policy, with a proven desire to serve the public and the ability to allocate resources equitably. The process, however, is viewed with less trust, since it is both subjective and self interested. The desire for a more objective system was strongly supported. This dichotomy was weakly corroborated by the lack of a significant relationship between the two questions[15,19]. Those who felt that Congress should have all, or most of the decision power, were only very slightly more likely to see political decision making as desirable, and vice versa[66].

The attitude toward the policy resulting from the political process varied strongly from group to group (Table V-5). Men in the "planner" grades were more in favor of attempts to rationalize decision making than their supervisors. The higher the grade, the further men go beyond the technical tasks of planning, and the greater the perception of the subjective nature of the tradeoffs. The senior men show stronger acceptance of political bargaining as a valid way to determine the direction of development. Planners, with their much more limited horizons, do not as often see the overall structure and significance of decisions and can remain more idealistic.

Corps and FWQA engineers were more satisfied with the policy resulting from the political process than those from the BuRec. A possible explanation is that the Corps has historically enjoyed strong support from Congress, whereas the BuRec has been far more an arm of the Executive. Political bargaining for projects has been of greater benefit to the Corps than other agencies, and hence their acceptance of it. Reclamation depends heavily on local support, and would be happier with an authorization system based on local willingness to pay rather than having to rely on the collective judgment of far-off and mainly non-involved politicians. FWQA has enjoyed the benefits of the recent rise in environmental consciousness and its resulting support by Congress.

Planners in the West were more likely to distrust the political arena than those in the Northeast, Midwest and South[72]. This was probably caused by the agency bias, with BuRec entirely a Western group, strongly against bargaining. However, the common distrust of Eastern politics and politicians among Westerners may have had some weight.

An increasing understanding of the laws was accompanied by a belief in the worth of the policy resulting from political decision making. Earlier, it was shown that a similar trend indicated an increasing social awareness and acceptance of the community's right to be involved in planning.

Congress-Agency Balance of Power

Congress establishes broad goals and policies by which federal water resource agencies are directed. It has the ultimate right to authorize projects and appropriate the money for their design and construction. Because of its leverage, this role is jealously guarded by congressmen against encroachment by the executive branch[73]. Yet, within the limits of policy, it is questionable whether or not ultimate authority of this type really gives control over water development. Agencies and planners determine the needs and alternatives studied, and usually reduce the final decision to a choice between a restricted set of options, often just the ultimate go/no go question. When alternatives are presented, they may serve essentially only one end, and once project plans reach the authorization and the appropriation stages, they possess a degree of momentum which is often difficult to resist, or even divert.

TABLE V-5

Value of Political Decisions versus Grade, Location, Agency and Knowledge of Legislation

Q.S76 Would water policy be improved if decisions were non-political?[19]

		Yes & Maybe	No	
		35	32	67
D-Grade[68]				
Planner	GS-11&12	27	16	43
Supervisor	GS-13,14,15	8	16	24
D-Agency[69]				
	Corps	19	23	42
	BuRec	12	3	15
	FWQA	4	6	10
D-Location[70]				
West--all offices west of and including Dallas and Ft. Worth	West	25	14	39
	East, Midwest and South	10	18	28
G107[71]				
Knowledge of legislation. Number of laws mentioned.	0	10	2	12
	1-3	13	9	22
	4-7	12	21	33

With regard to the freedom planners will display in selecting alternatives, it is vital to know how much control they feel Congress actually exerts, and what power they perceive as being in their own hands. Congress' ability to authorize and appropriate money for projects was rated as having the strongest influence on planning[17,18]. Forty-three per cent felt that it constituted complete control, and another 39 per cent felt that, if not quite all, most of the initiative belonged to Congress[17].

The primary mechanism of Congressional control was seen as being through authorization and policy legislation (40%). Appropriations and fiscal control were next, mentioned first by around 29 per cent, and overall over half the sample acknowledged their importance[18]. Nearly a fifth, did not, or could not, specify a method by which Congress.

Agency control also rated fairly high, but significantly less so than that of Congress. A bare majority (54%) said that agencies wielded a high degree of influence, but only one of this group felt that they could make any final decisions[23]. A third rated agency power to direct water development as only moderate and the remainder said that it was low and even non-existent.

Two primary management mechanisms were given as being operative. Agencies can deliberately structure their recommendations to provide a certain planning direction (36%)[24]. Or, they may control by default, that is, the ultimate decision may be constrained by the many small planning choices and interpretations made at all levels of the process, providing an inescapable conclusion (30%). Other measures mentioned were the agency's authority over a specific field of interest, their own political power, and the coordination requirements now imposed on all groups.

A majority, nearly 60 per cent, saw definite limits to their exercise of power. The major constraint was given as their inability to challenge the demands of congressmen, or to refute purely political bargains (33%)[24]. Coordination regulations (13%) and their limited legal authority (11%) were also felt to limit their autonomy.

In sum, both Congress and agency were conceded considerable power, but Congress' ultimate authority was generally viewed as being of greater impact than the agencies' expert recommendations or ability to manipulate alternatives. However, a more important implication is that together these two decision centers were felt to control most of the planning alternatives for water development. Where the relation between them is a close one and they share similar interests, as is especially true of the Corps, a matter for concern is the difficulty of ensuring the accountability of all plans. As Marshall[75] has shown, even the countervailing power of the President may not provide an adequate adversary. It is a compelling argument for the public, through locally representative groups or the states, to be given sufficient resources to develop the expertise, to provide the system of checks and balances which is the foundation of the U.S. government structure.

Agency Role

Most planners appeared satisfied with the existing distribution of influence over water planning. Less than a third said that the agency should be given more control over development[21].

in their explanations, many (35%) were nonspecific, simply expressing the feeling that current methods of control available to the agencies, and the leverage they provide, are adequate for planning purposes[22]. Others (16%) thought that more power was irrelevant, since agencies enjoy only a limited outlook and experience, and because their function should generally be limited to one of non-directive service. Thirteen per cent wanted control in the hands of the public, or their representatives in the state and federal legislatures and not with the agency.

The minority who did seek a greater role for their agency were divided by two quite different motives. Sixteen per cent said that the planners' expertise and knowledge of local affairs qualified them to determine directions. The remainder (15%) were chafing under their lack of autonomy, they felt that the agency should decide what studies it would undertake, and how its budget should be disbursed, without political interference.

These opinions were apparently generally held throughout the entire sample. In particular, no differences between the agencies sampled were evident.

Decision Makers

Up to now, only the planners' general attitudes toward the social-political environment have been investigated. This revealed that Congress was conceded primary control over planning, that the agency was also seen to have considerable influence, but apparently subordinate to Congress', and that the public was given a very limited decision role, except as a source of information.

The planning process contains many types of decisions, ranging from the choice of techniques of analysis and types of data used, through the determination of needs and alternatives up to setting overall goals or establishing the directions for development. Commonly, these are not discrete choices, since each can have an effect on several other related options. As an example, the final aims of a plan can be as strongly influenced through the projections of the needs to be met, or by the alternatives studied, as by the direct goals specified by law. Since planners are making such decisions in various forms, their perceptions or opinions of how some of those most frequently encountered are, and should be made, were investigated[25].

The selection of alternative decision makers was made broad, and included the planner, his agency, Congress, the general public, state and local groups and any combinations of them. Unfortunately, the separation between the planner and the agency was not made as clearly as it should have been, and many men were confused as to the difference intended. (What was sought was to divide those decisions which are largely part of agency rules, manuals, established procedures, etc., from those that a planner makes based on his professional training, initiative and personal judgment). Thus, although the two were recorded separately, except where the differences were extreme, they really should be considered as one identity. The other sources were grouped into a multiple or coordinated set of decision makers (see note to Table V-6), the general public or state and local interests, and the U.S. Congress[25,76].

TABLE V-6

Decision Makers

	Planner	Agency*	Multiple Decision Maker**	Public/ States/ Locals	U.S. Congress	Don't Know
Q. S80[25] Who ultimately decides?						
a. Project economic life	16.4%	61.7%	0%	1.5%	14.9%	4.5%
b. Economic/population projections	23.9	64.2	6.0	1.5	4.5	0
c. Water needs	35.8	20.9	26.8	12.0	3.0	1.5
d. Alternatives studied	40.3	32.9	13.4	6.0	7.5	0
e. The best plan	29.8	32.9	16.4	7.5	11.9	1.5
Q. S81[25] Who should decide?						
a. Water needs	34.3%	11.9%	22.4%	28.4%	3.0%	0%
b. Goals or objectives	19.4	13.4	16.4	29.9	20.9	0
c. Relative merits of economics and environment	13.4	13.4	11.9	25.4	34.4	1.5
d. Alternatives studied	44.8	14.9	22.4	15.0	3.0	0
e. The best plan	26.8	13.4	19.4	21.0	19.4	0

* Agency - Planner's own agency or a single alternative agency, such as the Bureau of the Budget, Office of Business Economics, Economic Research Service, Water Resource Council, etc.

** Multiple Decision Maker - Combinations of all, or some of above--commonly planner or agency plus states and locals; Congress plus states and locals; regional commissions and coordinating committees.

As Table V-6 reveals, the choices of planning criteria and techniques were mostly seen as being agency functions. The role of those outside the bureaucracy received little recognition, beyond the small group who said that Congress sets the criteria. While these perceptions of the importance of the agencies' role in providing institutional guidelines are largely valid, they nevertheless may undervalue Congress' control of their operating criteria[77]. When it specifies a goal, Congress often establishes the means and levels to gauge their attainment, as for example their requirement that for national economic good the benefit-cost ratio should exceed unity, or that air and water quality standards should reach a particular level by a certain time[78].

Within the planning task, decisions as to needs and alternatives were primarily held to be the responsibility of the individual planner and his agency. Outside, only the multiple decision maker group was felt to have a place, and even there, many of these combinations also had a bureaucratic focus[25]. When the acceptability of this form of control was tested, there was some shift to a desire for a broader input. The support for the planner's role was maintained (and even slightly increased on the choice of alternatives) but the agency suffered, mainly to provide the public or state and local interest with some influence. In neither of the decisions on needs or alternatives was any significant perception of an existing or future need for Congressional decisions indicated.

Two points can be noted. The planners' perceptions of their (and the agencies') ability and right to control two of the central phases of planning were frequent enough to imply that they hold a greater degree of power over the content of plans and their recommendations (especially in relation to Congress) than previously admitted. (There was little or no relationship between the general decision roles of the agency or Congress given earlier[15,19,21], and their control of these specific choices.)

In spite of the apparent desire for a greater public voice in deciding on the alternatives to be studied, planner (and agency) influence was still held to be paramount. The same demand for an increased public involvement was also shown previously when a majority said that while the alternatives released for general scrutiny were currently limited, the public should have the right to know about every option examined[13]. However, while the public's claim to full knowledge was supported by 64 per cent of the planners[13], their decision rights were upheld by only 15 per cent. Planner control on the other hand was sought by 45 per cent (60% with the agency). Thus, once again, the degree of public involvement sought was severely limited. The public can be informed (and even provide feedback) but they should have little direct influence. The strategy chosen is restricted to that of information or co-optation[42,43].

Looking beyond the analytic phase of planning, the approval of community and Congressional control grew more pronounced. While existing power to determine the final form of a plan was seen to belong mainly to the bureaucracy, the desire for a wider source of direction was quite evident. Even here, however, the individual planner's role was strongly upheld.

Only on the issue of the goals of development and the source of the overall emphasis given to plans was acceptance of, and a wish for, outside control really dominant. Earlier it was shown that planners felt that the agencies' long range objectives were chiefly established by Congress or the President, and that local interests had the primary influence over local or regional plans. Both rights were also upheld here. Public and legislative control of goals and the nature of growth received the majority support.

Two trends were clear from Table V-6. The more immediate the decision to the planning process, the greater the existing and accepted role of the planner and his agency. On broader and what were apparently considered as less direct issues, the wider the perceived decision environment. These are logical and largely valid views. The public and its representatives should certainly set overall planning goals. However, as argued in the previous chapter, a greater sense of the direct impact on plans of the goals set outside the bureaucracy must also be developed by planners. Further, a real public involvement in planning demands that they be given a voice in some of the choices hitherto almost solely at the discretion of professionals, such as the decisions on needs or alternatives.

In spite of the trend to seek a greater inclusion of the community and its political institutions, the dominant single influence on plans remained the planner. Since it was the agencies' positions which suffered by comparison with the support for planners on most choices, the desire was mainly to maintain the role of individual, rather than just the more general bureaucratic control over plans. Together with the overall negative attitudes held toward the public's competency or motivation[4], somewhat of an elitist outlook emerges. Thus, while planners were willing to say that the public should be more involved, their general attitudes once again belied this. The concern was apparently superficial, caused more by the weight of current demands for recognition of the communities' wishes in plans than by a real sense of a need for such inputs.

There were few major differences in these attitudes between the various groups of planners. Certainly the potential for defined agency views, given their differences in outlook expressed in Tables V-4 and V-5, were largely unfulfilled except on the question of public control over the alternatives studied[79]. Here, Corps planners opposed such involvement, while those in FWQA and BuRec supported a public input on alternatives.

A viewpoint that did emerge strongly was that on the broader issues the supervisors proved readier to accept that those outside the bureaucracy should establish planning goals and values, while those in the lower grades tended to still view it as the right of the planner or agency (Table V-7). The reason for the split is probably tied into the earlier finding that supervisors also showed a greater recognition of the value of political decision-making than their juniors (Table V-5). The underlying thread is the role played by a grasp of the legislation. Supervisors knew more about the laws (Chap. IV), and the higher such knowledge, the greater the acceptance of the function of the political process (Table VI-5). Consequent to such an understanding should be a willingness to allow society

TABLE V-7

Decision Makers versus Grade, Knowledge of Legislation

		Planner/Agency	Congress/Public[81]	
		Q. S81b Who should decide goals?[25]		
D - Grade[82]				
Planner	GS-11 & 12	19	25	44
Supervisor	GS-13,14,15	3	20	23
		22	45	67
		Q. S81c Who should decide between objectives?[25]		
D - Grade[83]				
Planner	GS-11 & 12	16	27	43
Supervisor	GS-13,14,15	2	21	23
		18	48	66
		Q. S81e Who should decide on final plan?[25]		
Q. G107[84]				
Knowledge of legislation: Number of laws mentioned.	0	8	4	12
	1-3	12	11	23
	4-7	7	25	32
		27	40	67
		Q. S64 What alternatives should be released to public?[13]		
		All	Limited Set	
Q. G107[85]				
Knowledge of legislation Number of laws mentioned.	0	5	8	13
	1-3	17	6	23
	4-7	22	11	33
		44	25	69

to set its own goals or direction for growth. To further underline the claim, as shown in Table V-7, the greater the number of laws influencing planning given, the more likely individuals were to seek that the public be given all the alternatives studied by the agencies, and more importantly, to give Congress and the public the right to determine the final form of the plans used.

Finally, as noted earlier, there was little direct connection between the general attitudes toward the various decision-makers described in the first part of the chapter, and the opinions held about these more specific alternative roles. Neither were the planners' personal role preferences reflected in their choice of decision-makers. However, predictably, the control rights assigned within this group of tasks were strongly related to each other. That is, those who felt that the planner or agency should make any of these specific decisions, also tended to accord them control over all the others. Thus, for example, respondents assigning bureaucratic sources the power to determine needs, also were more likely to have them deciding alternatives, the final plan, goals and the relative value of different objectives[86], and so forth.

What is suggested is some confusion, or variance between planners' expressed views and their reactions when placed in an actual decision situation. As seen several times in this chapter, outward attitudes and the real beliefs which determine behavior, are apparently often two different things.

The need for more investigation of reactions and attitudes toward specific, rather than generalized situations is indicated.

QUESTION SUMMARY--CHAPTER V

1. Q. S60 "What public groups or interests do you take into account in your planning?"

Function	
Resource agencies (Fed/State/Local)	81.4%
Special interest groups (Conservation or business)	10.0
Taxpayers/ad-hoc groups	2.9
Congress/State legislators	1.4
Independent research groups	1.4
No answer	2.9
	100.0%

Geography	
National	17.1%
Regional/State	35.7
Local (city,individual)	37.1
National, State or Local	7.1
No answer	2.9
	100.0%

N = 70

2. Q. S61 "Are there any groups or interests which are not adequately represented?"

Function	
General public/taxpayer	28.6%
Special interests	20.0
Independent research groups	1.4
	50.0%
None	50.0%
	100.0%

Geography	
National	12.9%
Regional/State	4.3
Local	12.9
National, State, or Local	20.0
	50.0%

N = 70

3. Q. S62 "Define what you mean when you use the phrase 'the public'?"

General taxpayer	50.0%
Those in project area	61.4%

Answers not mutually exclusive.
N = 70

4. Q. S72 "Using the five-point agree-disagree scale, would you say that:"

		Agree	Mildly Agree	Unsure ?	Mildly Disagree	Disagree	No Answer
a.	The public is competent to make technical judgments?	4.3%	8.6%	2.9%	22.9%	61.4%	0%
b.	The public is highly interested in public works?	30.0	25.7	8.6	24.3	11.4	0

4. (Cont.)

		A	a	?	d	D	NA
c.	The public is highly cohesive over interests affecting their welfare?	17.1	17.1	2.9	15.7	47.1	0
d.	The public is easily swayed by emotional, nontechnical arguments?	60.0	35.7	1.4	1.4	1.4	0
e.	The public is generally ignorant of the issues involved in water planning?	37.1	25.7	10.0	17.1	8.6	1.4
f.	The public is self-seeking?	48.6	25.7	8.6	4.3	10.0	2.9

N = 70

5. Q. S68 "Do you think the public should be more involved in planning?"

Yes - 60%; Ambivalent - 1.4%; No - 38.6% N = 70

6. Q. S68 "Why?"

Yes/Ambivalent	
Democratic ideal	47.7%
Provide an input to plan	10.0
Need public acceptance to expedite plan	5.7
	61.4%

No	
Federal control needed	1.4%
Public not competent	20.0
Must work through organizations, not the mass public	1.4
Current methods adequate	15.7
	38.6%

N = 70

7. Q. S68 Yes - "How?"

Type of Action	
Improve current methods	37.1%
Public advisory input, no control	15.7
Public input, partial control	2.9
No answer	5.7
	61.4%

People Involved	
Mass public contact	41.4%
Elite groups	14.3%
No answer	5.7
	61.4%

8. Q. S69 "Should the general public have decision-making power during the planning process?"

Yes - 40.6%; Ambivalent/Don't Know - 2.9%; No - 56.5% N = 69

9. Q. S69 Yes - "How?"

Method	
Respond to agency initiative	17.4%

Degree of Control	
Advisory/information input /make wishes known	39.2%

9. (Cont.)

Public initiative/ pressure	13.0	Partial or direct control	0
Some each, or either	8.7		
No answer	1.4	No answer	1.4
	40.6%		40.6%

10. Q. S69 No/Ambivalent - "Why not?"

Public incompetent	43.5%
Federal agency control best	7.2
Only get opposition, biased minority input	4.4
Current system adequate	2.9
No answer	1.4
	59.4%

11. Q. S70 "Do they (the public) have any decision making power now?"

Yes - 86.8%; No - 13.2% N = 68

12. Q. S70 Yes - "How?"

Method		Degree of Control	
Respond to agency initiative	26.4%	Advisory/information input /make desires known	75.0%
Public initiative	54.5%	Partial or direct control	11.8
Both, respond and take initiative	5.9		
	86.8%		86.8%

13. Q. S64 "In investigating a set of alternative solutions, which agency policy (of the categories below) should be adopted?"

Q. S65 "What is your agency's current policy in releasing alternatives to the public?"

		S64	S65
a.	No alternatives should be released, except the one ultimately proposed by a plan	1.4%	7.1%
b.	Only selected alternatives should be released outside of the agency	2.9	24.6
c.	All alternatives found to be feasible should be made public	23.2	14.5
d.	Only the feasible alternatives should be made public, but all alternatives should be given to Congress	7.2	2.9

13. (Cont.)

e.	The results of all alternatives which are studied should be made public	63.6	39.2
f.	Technically feasible alternatives made public	1.4	1.4
g.	Don't know	1.4	10.1
	N = 69	100.0%	100.0%

14. Q. S73 "What do you think is Congress' motive for their interest in water resource development?"

Service/welfare of the public	43.5%
Political gain	24.6
Reaction to pressure	17.4
Economic growth/control	8.7
No motive, just competent to decide	4.4
No real interest at all	1.4
N = 69	100.0%

Constituency	
National	45.0%
Regional and local	27.5
Self interest	27.5
	100.0%

15. Q. S74 "Should Congress have direct control over water development decisions?"

Yes - full control - 66.7%; Most control - 17.4%; Some control - 4.4%; No control - 11.6% N = 69

16. Q. S74 "Why?"

Yes/Most		No/Most/Some	
Represent, serve the public	43.4%	Decisions too political	10.1%
Expertise, sensitivity, national viewpoint	11.6	Lack competence	11.6
Control agencies and executive	4.4	Better alternative decision makers exist	8.7
	69.5%		30.4%

17. Q. S75 "How much direct control does Congress have over water development decisions?"

All - 42.6%; Most - 38.2%; Some - 10.3%; None - 1.5%; Dont know/ No Answer - 7.4% N = 68

18. Q. S75 Type of Control by Congress.

	Primary Control	Secondary Control	Total
Through authorization power/legislation	39.7%	5.9%	45.6%
Through appropriations/fiscal control	29.4	28.0	57.4
Final decision only - agency controls alternatives	7.4	7.4	14.8
Executive decisions more powerful	2.9	1.5	4.4
Reaction to pressure only	1.5	0	1.5
States, locals in control	0	5.9	5.9
No answer	19.1	--	19.1
	100.0%	48.7%	148.7%

19. Q. S76 "Do you think that water resource policy would be improved if the decisions were taken out of the political arena?"

Yes - 48.5%; Ambivalent/maybe - 2.9%; No - 47.1%; Don't know - 1.5%
N = 68

20. Q. S76 Why?

Yes	
Eliminate politics	33.8%
More rational or efficient planning and decisions	7.4
Congress not competent	2.9
Funding process must improve	1.5
No answer	2.9
	48.5%

No/Ambivalent	
Resource allocation/bargaining is a political decision	10.3%
Congress competent/represents the public	20.6
No other decision maker/policy not changed by different decision source	13.2
Politics gives widest diversity of opinion	4.4
Must avoid agency autonomy	1.5
	50.0%

21. Q. S77 "Should your agency have more control than it does now over water development decisions?"

Yes - 31.9%; No - 62.3%; Don't know - 5.8% N = 69

22. Q. S77 Why?

Yes	
Best qualified/knowledge of local needs	15.9%
More autonomy on budget, studies needed	10.3

No/Don't Know	
Need public control (Congress, states, public)	13.1%
Agency limited, should be service oriented	15.9

Remove political influence	4.4%	Status quo adequate	34.8
Need super agency	1.4	No answer	4.4
	31.9%		69.1%

23. Q. S77 "How much control does the agency have over water development decisions?"

High - 53.6%; Moderate/some - 33.3%; Low/None - 8.7%; Don't know/ no answer - 4.4% N = 69

24. Q. S77a "What type of control do they have now?"

Controls

Through recommendations	36.2%
Through planning decisions/interpretations	30.4
Control over specific responsibilities	10.1
Through agency's political power	7.3
Through coordination requirements	5.8
None - act as public servant	1.4
No answer	8.7
N = 69	100.0%

Limits on control

Political constraints	33.3%
Coordination requirements	13.1
Limited legal authority/autonomy	11.6
Ability of agency hierarchy	1.4
No answer	40.6
N = 69	100.0%

25. Q. S80 "Who ultimately decides?"
Q. S81 "Who should decide?"

	Planner	Own Agency	Single Alternative Agency	Multiple Decision Makers	State & Local Groups	State Interests	Local Interests	General Public	U. S. Congress	Don't Know
"The economic life of a project"										
S80	16.4%	54.2%	7.5%	0	0	0	0	1.5%	14.9%	4.5%
S81	Not asked									
"The type of economic and population projections to use"										
S80	23.9	47.8	16.4	6.0	0	1.5	0	0	4.5	0
S81	Not asked									
"What the water needs of the basin are"										
S80	35.8	19.4	1.5	26.8	1.5	4.5	3.0	3.0	3.0	1.5
S81	34.3	11.9	0	22.4	3.0	6.0	7.5	11.9	3.0	0
"Which alternatives will be studied"										
S80	40.3	31.4	1.5	13.4	1.5	3.0	1.5	0	7.5	0
S81	44.8	13.4	1.5	22.4	4.5	0	4.5	6.0	3.0	0
"What the best plan is"										
S80	29.8	31.4	1.5	16.4	1.5	4.5	1.5	0	11.9	1.5
S81	26.8	11.9	1.5	19.4	1.5	6.0	4.5	9.0	19.4	0
"What the goals or objectives of development will be"										
S80	No asked									
S81	19.4	11.9	1.5	16.4	1.5	7.5	8.0	17.9	20.9	0
"The relative importance between such goals as economic efficiency and environmental enhancement"										
S80	Not asked									
S81	13.4	11.9	1.5	11.9	3.0	4.5	3.0	14.9	34.4	1.5

Single alternative agencies mentioned were: The Water Resource Council, OBE, ERS, and the Budget Bureau.

Multiple decision makers were: combinations of all or any of the above, commonly agency plus the state and local interests, or Congress plus state and local interests, regional commissions and coordinating committees.

N = 67

NOTES--CHAPTER V

26. Simon, Herbert A., Administrative Behavior, The Free Press, New York, 1957, p. 1.

27. Not an unexpected result. It represents a preference for efficiency. Planners have limited time and must concentrate their attention where they feel it will be most effectively spent. Other government groups, because they are organized, represent a legal viewpoint, and have expertise, are an obvious choice.

27a. For instance, in Q. S63 half of the planners felt that the current public hearing system was an inadequate method of communication with the public.

27b. A number of planners expressed similar views, calling for a revision of current economic analysis methods. Several said that the B/C ratio could be manipulated to satisfy whatever goal the planner wished to meet. One result of the overemphasis on B/C methods over other means of project evaluation has been that it has come to be viewed simply as an obstacle to be surmounted to ensure a plan's acceptance, rather than as an indication of the project's contribution of a certain type of benefit. Used properly, without the pressure to artificially inflate benefits, etc., and placed on an equal footing with social, environmental and political analyses in determining the project's worth, its value could be re-established.

28. Probably an accurate assessment. Few people are truly altruistic. Self interest is the commonest, and most effective reason for an individual to become involved in community problems. However, relating the two variables (S72(b) and 72(f)), there was a slight tendency for those who saw the public as interested to also view them as unselfish, and vice-versa. Similarly, those who said the public were ignorant (S72(c)) also said they were self seeking. The impression given is that the statement of S72(f) is viewed negatively rather than as a simple statement of fact.

29. A very similar mixture of attitudes is expressed in Chapter VII, "Nature". In giving their opinions of the public's attitude toward current environmental problems (N50(a) and N50(b)) most planners said that the public was generally concerned about nature and that they would be willing to make some sacrifices to save natural resources from destruction. However, the commitment was not felt to be very fundamental, the public considered as unwilling to accept direct or significant costs, or to become involved beyond very direct and selfish interests.

30. The other attitudes toward the public were not as strongly related to the planners' opinions about decision making, or were too lopsided to enable a meaningful analysis to be made. More discussion of the effect of perceptions of the public on decision making is given in the later analysis.

31. N = 66, Chi Square=8.57, 2 degrees freedom, level of signif. = 0.02.

32. A similar trend occurred between S72(f) and G132. Those judging the public selfish felt that goals should be controlled by national interests, while those viewing the public as unselfish, felt local interests should dominate.

33. N=67, Chi Square=6.70, 2 degrees of freedom, level of signif.=0.05.

34. N=70, Chi Square=6.87, 2 degrees freedom, level of signif.=0.05.

35. N=70, Chi Square=4.54, 2 degrees freedom, level of signif.=0.10.

36. N=70, Relationship not significant.

37. N=70, Relationship not significant.

38. N=70, Chi Square=5.12, 2 degrees of freedom, level of signif.=0.10.

39. N=70, Chi Square=5.11, 2 degrees of freedom, level of signif.=0.10.

40. Similarly with *S72(f)*. The supervisors thought that the public were unselfish, the planners tended to the opinion that they were selfish.

41. This general feeling was corroborated by the response to *S61*, where 50% also felt that certain public interests were insufficiently considered during the planning process.

42. Edmund M. Burke, *op*. *cit*., pp. 287, 291-2.

43. Sherry R. Arnstein, *op*. *cit*., pp. 216-217.

44.

		Q. S68 Public more involved?[5]		
		Yes	No	
Q. S69				
Should public have decision making power?	No	22	19	41
	Yes	20	8	28
		42	27	69

Relationship not significant.

45. Reinforcing the impression given in S72(a), where 84% said the public was generally incompetent[4]. Also in the reasons given for saying the public should not be more involved, 20% also claimed public incompetency[6].

46. Even stronger among the reasons given for no increased public involvement in S68.

47. Although specifically given by only three men in this instance, this general comment was frequently heard during the entire public involvement section.

48. Anthony Downs, *op. cit.*, p. 237-238.

49. Herbert A. Simon, *op. cit.*, p. 54.

50. Gene E. Willeke, *op. cit.*, p. 81.

51. As certain agencies, notably the Corps, is attempting to do.

52.

			Q. S68 Should public be more involved in planning?		
			Yes	No	
D - Age[53]					
	Years:	Under 40	24	12	36
		40 & over	18	16	34
D - Agency Service[54]					
	Years:	Under 10	25	9	34
		10 & over	17	19	36
			42	26	70

53. Relation not significant.

54. N=70, Chi Square=4.01, 1 degree freedom, level of signif.=0.05.

55.

			Q.S65 Current Policy on the release of alternatives to public			
			All	Limited Set	Don't Know	
D - Age[56]	Years:	Under 40	9	23	4	36
		40 & over	18	12	3	33
D - Grade[57]						
	Planner	GS-11&12	12	26	6	44
		GS-13,14,15	15	9	1	25
D - Agency Experience[58]						
	Years	Under 10	10	19	5	34
		10 & over	17	16	2	35
			27	35	7	69

56. N=69, Chi Square=6.48, 2 degrees freedom, level of signif.=0.05.

57. N=69, Chi Square=7.50, 2 degrees freedom, level of signif.=0.05.

58. Relationship not significant.

59. N=70, Chi Square=6.44, 2 degrees of freedom, level of signif.=0.05.

60. N=70, Chi Square=15.29, 2 degrees of freedom, level of signif.=0.001.

61. Hubert Marshall, *op. cit.*, pp. 295-297.

62. Marshall points out that the relative weakness of American political parties means that the individual congressman is more directly accountable to the voters, rather than the party for support, forcing this local, self interested outlook. Of course to be thus accountable also has the advantage that the individual voter has a greater degree of control over the actions of government, which compensates for any inefficiencies and the fewer opportunities for a congressman to demonstrate a statesmanlike outlook.

63. Even if the project's economic worth is suspect, it will often still be promoted, since it is the appearance of effort, not just the result, which will gain the support.

64. *Q. 78* "Your agency is sometimes accused of being a pork barrel agency. What is your response to this type of criticism?"

True - 9.2%; Partially, sometimes true - 27.8%; Very rarely true - 14.8%; Not true - 44.5%; Don't know - 3.7%. N = 54*

*FWQA planners were not asked this question.

65. Essentially, viewing the congressman as a trustee rather than a delegate. A trustee is one who can use his own initiative to judge, and bargain for, what he feels are worthwhile ends. A delegate, on the other hand, seeks only to transmit and work for the strict wishes of his constituents. (Marshall - "Rational Choice in Water Resource Planning" - ref. note 75.)

66. *Q. S74* "Should Congress have direct control over water development decisions?"

			Yes	Limited/ None	
Q. S76[67]	"Would policy be improved it taken from the political arena?"	Yes/ Maybe	28	7	35
		No	29	3	32
			57	10	67

67. Relationship not significant. (Actually, *S74* was too lopsided to give a really meaningful cross tabulation.)

68. N=67, Chi Square=4.01, 1 degree freedom, level of signif.=0.05.

69. N=67, Chi Square=6.3, 2 degrees freedom, level of signif.=0.05.

70. N=67, Chi Square=4.18, 1 degree freedom, level of signif.=0.05.

71. N=67, Chi Square=8.27, 2 degrees freedom, level of signif.=0.02.

72. West - San Francisco, Portland, Sacramento, Los Angeles, Billings, Boulder City, Denver, Dallas, Ft. Worth.
Midwest - Chicago, Omaha, Detroit.
South - Clarleston, New Orleans.
Northeast - Boston, Baltimore.

73. Senator A. Ellender, "The Role of Congress in Water Resource Development", *Congressional Record - Senate*, June 5, 1967, pp. 14665-14666.

74. A possible lack of understanding of some of the basic processes by which Congress operates in regard to public works was indicated by the confusion a number of planners exhibited between authorization and appropriation. Several thought that they were essentially the same thing. This problem may have been due in part to the differences between the authorization procedures of the two major agencies--Corps and BuRec.

75. Hubert Marshall, "Rational Choice in Water Resource Planning", Chapter 22, *Economics and Public Policy in Water Resource Development*, ed., Smith & Castle, Iowa State Univ. Press, 1964, pp. 412-416.

76. In analysis, normally the division used was simply between the planner plus agency choices and those outside the bureaucracy, which summed the multiple decision maker, the public, states and locals and the Congress. The difference sought was between an elite decision source and one which included a broader spectrum of society, or at least attempted to do so.

77. The lack of recognition of the role of legislation, as opposed to agency regulations, in controlling planning, was also demonstrated in the discussion of goals. Several planners actually commented that they saw little relationship between planning and legislation. See discussion of Q. G107, Chapter IV, "Planning Objectives".

78. Of course the agencies may help Congress to develop such standards but much of it comes from the staff work of their own committees, executive task forces, commission recommendations, etc.

79. Greatest support for a public role in developing alternatives came from FWQA, and less strongly BuRec planners. Corps planners tended to oppose such an input.

		Q. S81d Who should decide alternatives studied?		
		Planner/ Agency	Congress/ Public[76,81]	
D - Agency[80]	Corps	30	11	41
	BuRec	7	8	15
	FWQA	3	8	11
		40	27	67

Thus those in the FWQA backed up their expressed wish for a greater public involvement (Table V-4) with a direct means of control. Corps planners were ambivalent about the public involvement, and were also unwilling to accept directions from outside. BuRec opposed involvement in general, but perhaps because of its need for local support and willingness to pay for its proposals, were more likely to accept local input to the alternatives studied.

80. N=67, Chi Square=8.96, 2 degrees of freedom, level of signif.=0.02.

81. Congress/Public - includes U.S. Congress, Public, States, Locals, and multiple decision makers - all those outside bureaucracy.

82. N=67, Chi Square=4.93, 1 degree of freedom, level of signif.=0.05.

83. N=66, Chi Square=4.79, 1 degree of freedom level of signif.=0.05.

84. N=67, Chi Square=9.33, 2 degrees of freedom, level of signif.=0.01.

85. N=69, Chi Square=4.75, 2 degrees of freedom, level of signif.=0.10.

86.

		Q. S81a Who should decide needs?		
		Planner/Agency	Congress/Public[81]	
		31	36	67
Q.S81d[87] Who should decide planning alternatives?	Planner/ Agency	24	16	40
	Congress/ Public[81]	7	20	27
Q S81e[88] Who should decide final plan?	Planner/ Agency	19	8	27
	Congress/ Public	12	28	40

86. (Cont.)

		P/A	C/P	
Q.S81b[89] Who should decide goals?	Planner/ Agency	17	5	22
	Congress/ Public	14	31	45
Q.S81c[90] Who decides relative values?	Planner/ Agency	13	5	18
	Congress/ Public	18	30	48

87. N=67, Chi Square=6.22, 1 degree freedom, level of signif.=0.02.

88. N=67, Chi Square=9.00, 1 degree freedom, level of signif.=0.01.

89. N=67, Chi Square=10.88, 1 degree freedom, level of signif.=0.001.

90. N=66, Chi Square=5.02, 1 degree freedom, level of signif.=0.05.

CHAPTER VI

TIME

Planning works with time. It attempts to both anticipate the problems of and create a future state. It deals in potentials rather than facts, but develops its images primarily from the examples and trends of the past. It thus must cope with the fallibility of historical records plus the inevitable errors of prediction. Such difficulties may cause planners to be conservative in their forecasts (usually in the over-reactive sense). These difficulties do not change the fact that planning, since it assumes the existence of a future, is an optimistic endeavor.

A planner's preconceptions or images of the future will help determine how he plans, because they control what he considers as relevant alternatives. The United States has a growth oriented culture which has been reflected in water planning by the apparent assumption that tomorrow's world will simply be a larger version of today's, and further, that this is a desirable end. Together with the forces created by water's "uniqueness," the result has been facilities whose capacities were based on their maximum potential usage rather than on a free market demand, or as is now suggested, a change pattern designed to provide regional, environmental or social benefits.

The possibility of a totally different future, unrelated to existing society, is usually ignored. Yet, as Fabun[13] has postulated, the world of twenty or thirty years hence may be as unlike 1970 as was the world of one or even two hundred years ago. Technology could take a quantum jump, or just continue to expand at an exponential rate, national priorities may be changed, even growth trends reversed, or the world devastated by nuclear warfare. Actually, assuming a peaceful alternative, the only way dramatic change in growth patterns and customs can be prevented will be through inertia or reluctance of political and economic systems to accept and adapt to them. This could result from the cumulative effect of a lack of flexibility in individual thinking and capacity to change. Simple reliance on the lessons of the past cannot fully prepare men for such possibilities.

It is difficult to plan for a changed world. The projection of needs must be made by intuitive rather than trend based methods[14]. The degree of initiative and foresight required is high. Few planners are truly innovative. Most men rely on the vision of others or on fixed procedures to guide their work.

A balance must be struck. Its nature will depend heavily on the time horizons chosen. For horizons of 5-20 years, greater dependence on the momentum of past patterns is probably acceptable. The longer the time horizon the more innovative the images must become. The more rapid the rate of change, the more limited the planning period and the greater the urgency of planning.

This section is an attempt to find out where this balance lay for the planners sampled.

Reference State

A planner's reference state, that is, where his primary attention lies, and whose possibilities determine his motivation, should be in the future. This viewpoint is strengthened because Americans generally are future oriented, emphasizing growth and anticipating that things will get better rather than worse. Most are proud of not being bound by tradition, the past is not held to be good just because it is past. Few are content simply with the present[15].

Just over two thirds of the planners (68%) were of the opinion that they were more influenced by the needs of the future than by the way things were done in the past[1]. However, twenty-four per cent, an unexpectedly large minority, said that past experience was more important, and another 8 per cent that both future and past were equal or that they were unsure about which was more influential. Five men in the majority also conceded that past directed thinking was a significant force personally or in the agency.

The number of men in the latter categories was surprising for two reasons. The question was a poor one, emotionally loaded towards a choice for the future. Given the image of professionals possessing and using a high degree of initiative, it involved a concession on the planners' part to admit to working mainly according to fixed roles or precedent[16]. In addition, this bias should have been reinforced by the broader weight of the prevailing cultural ethic.

The evidence was not strong enough to refute the original expectation. The planners basically identified with the future. However, it was certainly demonstrated that perceived future needs were not the only influence on their outlook. The results even suggest that if the investigation had been made indirectly, avoiding the predisposition actually induced, that a greater overt reliance on past methods could have been found.

Another facet of the minority answer was that it showed a certain pragmatism. Planners must consider both the future and past history and experience. A number were honest, or realistic enough, to recognize that for them, the latter was the more powerful force.

The degree of pragmatism in the planners' time horizons was more clearly shown by the sixty-six per cent who said that their personal or private concern was with the present or near future (56% in the latter)[2]. Just a third chose a longer "future" image, and only one man claimed to be primarily motivated by the distant future. Nobody expressed any thought for the past. The apparent view was that immediate problems control, the past is gone, and any remaining problem is too far away to allow it to be a major worry.

Two rival hypotheses relating age, grade and experience to the indicated reference state were postulated. One was that the older the individual, the more frequently he would have already achieved his goals and the greater would be his exposure to the agency's procedures and experience. Thus, the more likely his reference state would have been the present or the past. The second was that because a younger man would be less sure of his own ground and would still be in the socializing or developing period of his agency experience, the greater the possibility of a dependence on past methods. Neither hypothesis received significant support, although the second appeared more possible[17]. If such processes do occur, the conflicting trends largely nullified each other.

No variation in the length of time horizons by age or experience was found. A planner's time orientation was apparently not a function of agency socialization or personal longevity, but came from some more fundamental source of reference.

Outlook

Since the very nature of their task expresses a belief in the existence and worth of the future, it was expected that to a greater or lesser degree, the planners would display the same optimism. Both in a general and specific sense, this was found to be true.

Seventy-seven per cent of the sample regarded themselves as from moderately to highly optimistic about the future of mankind, while only twenty-two per cent showed some pessimism[3].

Two primary reasons were given for hope[4]. A strong belief exists in man's ability to solve the problems which he faces (32%). This was viewed as a combination of technical capability and progress; an increasing knowledge of and control over the environment; and man's innate flexibility and resourcefulness, or adaptability to survive rapid and extreme changes in his surroundings. The other major cause for optimism was that many of the planenrs (25%) were confident of man's basic motivation; they felt that man was learning from past mistakes; that his awareness of problems and the need for new types of solutions was growing; that youth was returning to the "real" values of life; and that man's overwhelming self preservation or survival instinct would direct him to change if all else failed. They said that while man might suffer, he would survive.

A smaller group (10%) relied on historical precedent. Their position was that mankind has had many challenges and often faced disaster, but has always surmounted them and continued to progress in spite of and in fact because of them. A few claimed that the world's problems were not as critical as they are publicly held to be, and that the rate of environmental destruction has slowed down sufficiently to ensure a better world[18]. Others were optimistic either because of a personal credo that hope was necessary, or because of a religious belief that man yet had a destiny to fulfill.

The main sources of pessimism (19%) were given as the world-wide problems of war, nuclear weaponry, overpopulation, environmental destruction, and pestilence. Several felt that social trends, such as "moral decay," increasing urban unrest, the rise in crime, and parental permissiveness would also lead to ultimate disaster. Others saw little hope without a shift in national priorities from emphasis on strictly economic ends to social or environmental goals, and an increasing public desire to cooperate and attempt to understand the needs and wishes of others. An equal number felt that future problems would stem from man's inability to solve his current difficulties, because his planning and technology were insufficient in both scope and growth.

It was expected that those expressing a general optimism would be future oriented and have increasingly farsighted horizons. While the first assumption generally held (Table VI-1), the second had mixed support. Planners who felt that their personal or private concern was mainly with the present tended to be pessimistic, and those with the near future, optimistic. However, the men who looked toward the future, or distant future, leaned more heavily toward pessimism than might have been expected. A possible explanation can be found in the reasons given for doubt about the future. The major sources of potential catastrophy are the result of long term processes. Thus, while the planners did not see disaster in the short term, it was apparently easier to lose hope about distant prospects.

TABLE VI-1

Outlook versus Time Orientation

		Q. T135	Outlook	
		Pessimistic	Optimistic	
Q. T143(a)[19] More influenced by the future or the past?	Future	6	36*	42
	Equal or?	2	3	5
	Past	6	9	15
		14	48	62
Q.T143(b)[20] Personal or private concern directed?	Present	3	3	6
	Near future	3	31	34
	Future and distant future	8	13	21
		14	47	61

More specific influences on the planners' outlook were also investigated. Here too, the reaction was strongly optimistic. Seventy seven per cent felt that the United States had sufficient natural resources to fulfill its needs for the foreseeable future[5], although a number noted that certain commodities could be in short supply and that imports of some goods are already necessary. In addition, eighty-eight per cent were confident that the country was not presently water short[6]. A somewhat smaller majority, sixty per cent also felt that the country would not lack water in the future[7]. However, the number of those showing some caution about the more distant prospects was noteworthy. Twenty-five per cent did think that water shortages would occur, and twelve per cent that shortage was at least possible. Again, it was the long-term view which caused concern.

The main reasons given for this confidence, or the conditions by which it was justified[8], were that good planning and management (39%), and/or new water supply technology (36%), would be effective enough to solve any problems. The need for population control also received support (16%). Nearly a quarter of the group said that problems would occur, but that they would not be national in scope, affecting only particular regions. A few were concerned by the existing and potential exploitation of resources and by their misallocation because of overemphasis on purely economic considerations. There was little apparent awareness of the change which has taken place from the historical or frontier exploitation of unlimited resources, to the current need to conserve a finite and decreasing quantity of raw materials.

A common claim is that youth is the optimistic force in the world, with increasing disillusion occurring with age and exposure to problems. In this case the general outlook showed little correlation with age or agency service. On specific issues, there was a faint indication that the reverse was true. The more experienced, supervisory grade planners were more likely to say that the U.S. had sufficient resources or would not be water short. Very little difference by age was found, though again, on the resource future, older planners were slightly more optimistic[21]. A possible explanation is that actually new planners come into the agencies with an outlook jaundiced by the current publicity about environmental problems. Those who have been working for some time have assimilated the agency views, which often hold that the concern is overemphasized. Surprisingly, there were no significant regional differences in future outlook on the issue of potential water shortages.

Length of the Future

Water resource projects usually have a long physical life, usually 50 to 100 years. Estimates of project effects for these periods must be made. Typically, the agencies use these horizons for their economic analysis, despite criticism based on the indeterminacy of distant future events.

We have seen that planners are confident of the future over short horizons and feel their principal concerns are in the near future. It is not surprising that they expressed a preference for short term analyses (Table VI-2).

TABLE VI-2

Planners' Time Horizons[9]

Q.T140

"How far into the future can we reliably predict:"

	Years				
	0-9	10-19	20-29	30-100+	Don't Know
Population?	7.2%	30.5%	42.0%	20.3%	0%
Water needs?	7.2	29.0	36.2	26.2	1.4
Economic Growth?	14.5	26.2	34.8	18.7	5.8
Social Change?	46.4	31.9	8.7	7.2	5.8

N = 69

Less than one fifth felt that reliable predictions of population, economic growth or social change could be expected beyond 25 years, and only a quarter felt that water needs forecasts could be reliable beyond 30 years. Over a third felt that a period of 20 to 29 years would be satisfactory for projections of population, water needs and growth, while for predicting social change, nearly half restricted the horizon for a reliable estimate to less than 10 years. Planning terms of 50 to 100 years received less than 15 per cent support in any category.

No relationships between the optimism of the planner and his views on the lengths of any of the predictions were found. There were indications that supervisors and long-term planners would prefer shorter forecast periods for population, water needs and the economy. The less experienced men were more likely to accept the long planning horizons (Table VI-3).

Interestingly the preferred forecast horizons for population, water needs or economic conditions were not significantly related to the perceptions of how far social trends could be extrapolated. Apparently planners have not thought about the relation of social change and water resource development.

Urgency

The priority attributed to their agencies' functions may have na important impact on two aspects of the planners' work. It could help determine the rapidity of the response to needs or demands. It should also reveal some aspects of the individual's basic sense of involvement.

TABLE VI-3

Length of Population Projection versus Grade and Experience[27]

		Q. T140a Population Projection (years)		
		0-19	20-100+	
D-Grade[25]				
Planner	GS-11 & 12	13	32	45
Supervisor	GS-13,14,15	13	11	24
		26	43	69
D-Agency Experience[26]				
Years	Less than 10	8	26	34
	10 & over	18	17	35
		26	43	69

Most planners felt that there was considerable immediacy to the regular programs of their agencies. Sixty-nine per cent said that they ranged from very urgent, or urgent, to somewhat urgent (51% upwards of urgent), while only one man saw no urgency in his work[10]. The level of commitment to the current aims of federal water policy and the obligation imposed by the need to prevent delays in its fulfillment that this revealed was thus quite high. There were several possible reasons for this outlook.

A major one is the place accorded to water and environmental programs among other national issues. As was shown in Chapter IV when given a direct choice, the aim of improving the environment received more support than strict economic goals. A 1970 Gallup poll also suggested that nationally, the reduction of air and water pollution was ranked as the second most important concern behind only crime. It exceeded education, poverty, racial tension and Viet Nam as an issue.

Secondly, the planners' limited horizons and distrust of distant events indicated that they saw a high rate of change in the direction of national and local progress, particularly in social patterns. Rapid change demands immediate action or at least creates pressures in this direction.

Finally, the urgency felt could demonstrate the operation of an agency territorial imperative. The programs may be seen as being important because they are expressions of, and necessary to the agencies' integrity and growth. Thus, the idea goes that: "if we don't do this job, somebody else will just have to do it, and will get the authority and budget it involves." Support for this possibility is mixed. While 69 per cent accepted the existence of agency rivalries[28], only 32 per cent admitted that this could result in overemphasis of the agency's own viewpoint or self interest[29].

TABLE VI-4

Urgency of Programs versus Emotional Involvement, Environmental Urgency and Acceptance of Overbuilding

		Q.T141 Urgency of agency programs			
		High	Moderate	Low	
		45	9	12	68
Q.P27[31]					
Degree of Personal involvement felt	High	34	6	4	46
	Low	11	3	8	22
Q.N45[32]					
Environment urgency -10 year deadline?	Yes/maybe	27	1	6	34
	No	20	8	6	34
Q.T142[33]					
Overbuild projects now?	Yes	29	6	5	40
	Depends/ No	18	3	7	28

The extent of an individual's personal or private involvement[30] in his work was also reflected in the degree of urgency felt. The men who were most highly concerned about the success or failure of their plans also had the highest sense of a need for haste (Table VI-4). A strong commitment to the agency and its policy destroys some of a planner's objectivity but increases his desire to give service as directly as possible.

The priority given to water resources was confirmed by the responses to two other questions.

As will be discussed in Chap. VII, a surprisingly large group of planners agreed with (41%), or at least did not dispute (9%), the extreme viewpoint that environmental problems are so urgent that solutions must be provided within ten years if the world is to survive.

Fifty-nine per cent also agreed that it was important to build projects which have capacities far beyond the requirements to meet existing needs[11]. The major reasons given were predicated on the assumption that growth to utilize the entire installed capacity would occur either naturally or generated by the project, and thus it was best to be prepared for the ultimate eventuality, regardless of present costs (31%)[12]. Other men justified this view on the grounds of economy of scale (12%) or through the flexibility and reliability an oversized project would provide (12%). Five men saw it as a matter of need to fully exploit the limited sites and resources available. Only 35% said that overbuilding was not justified (the remaining four men felt that it depended on the project envisaged) because it foreclosed on future options and flexibility (16%) or that it would not give an economical development (15%). Two men saw it taking money away from higher priority needs.

Table VI-4 makes two points clear. The perceived urgency of government water programs is closely tied to the more general concern about the entire environment. Water planning carries a central role in improving the environment. A sense of haste helps to overcome good planning practice. The planners expressing urgency were more likely to accept overbuilding of projects regardless of other factors, offering the possibility for the waste of resources.

Image of the Future

The purpose of this chapter was to describe the future world planners envisage, because this image will help control their contributions to its direction and substance.

The picture held is a conservative one. The horizons are short. Little change in the existing patterns of growth is expected before the turn of the century. Optimism about the near future and the availability of resources is strong. All problems to be faced are considered solvable by better management through current institutions and the application of existing technology. No evidence of an awareness of a need for, or the possibility of change in the direction of society was given.

The reaction to and planning for such a future can be expected to be cautious. The approach indicated is an incremental one. The pressure for a major shift in goals from within the agencies should be small. Since problems are viewed merely as extensions of existing trends, there is little incentive to seek out entirely new solutions or planning methods.

This appraisal may be a realistic one, but it indicates a lack of any stimulation to change. It may even cause the image to be a self-fulfilling prophecy and actually result in the compounding of existing problems. Larger difficulties cannot always be solved by a sheer multiplication of the means of solution. Although it may involve planners in areas never before considered, their efforts must go beyond the purely technical or economic answers. Problems can also be overcome by the elimination of their sources, or at the other extreme, by shifting the recipients of their ill effects outside the area of influence.

QUESTION SUMMARY--CHAPTER VI

1. Q. T143(a) "As a planner, would you say you are more influenced by the needs of the future or by the way things have been done in the past?

Future	59.7%	Past	16.1%
Future now, was past oriented	4.8	Past, unfortunately	4.8
Future, but would switch if supervisor did	1.6	Past, as if office/ agency	3.2
	67.7%		24.1%
		Both equal	6.6%
		Don't know	1.6%
		N = 62	100.0%

2. Q. T143(b) "Along the scale, Distant Past/Past/Recent Past/Present/ Near Future/Future/Distant Future, where would you say your personal or private concern is directed?"

Distant Past - 0%; Past - 0%; Recent Past - 0%; Present - 9.8%; Near Future - 55.8%; Future - 32.8%; Distant Future - 1.6%.

N = 61

3. Q. T135 "How would you rate your outlook on the future of mankind?"

Very pessimistic - 1.4%; Pessimistic - 10.1%; Moderately Pessimistic - 10.1%; Very optimistic - 8.7%; Optimistic - 50.8; Moderately Optimistic - 17.4%; Neutral - 1.4%. N = 69

4. Q. T136 "What are your major reasons for this outlook?"

Pessimism	
Force of circumstances, world's problems (war, over population, damaged environment, moral decay, etc.)	14.5%
Priorities wrong/nation and man lacks the desire or will to change/selfish outlook	4.4
Inability to solve problems	4.4
Limited resources	2.9
	26.2%
Optimism	
Man's technical abilities will overcome all problems	31.8%
Man's awareness/learning/motivation/are all high	24.6
Historical precedent	10.1
Problems not as critical as claimed	4.4
Religious beliefs, personal credo	2.9
N = 69	73.8%

5. Q. T137 "Would you say the U.S. has sufficient natural resources to fulfill its needs for the foreseeable future?"

Yes - 72.5%; Yes, with reservations - 4.4%; No, not in the long term - 1.4%; No, already use imports - 4.4%; No - 17.1% N = 69

6. Q. T138 "Do you believe the U.S. is presently a water short nation?"

Yes - 11.6%; No - 88.4% N = 69

7. Q. T139 "How about in the future?" (water short?)

Yes - 24.6%; Maybe - 11.6%; In long term only - 1.4%; Not for humans - 1.4%; No - 59.5%; No answer - 1.4% N = 69

8. Comments on T137, T138, T139.

Good planning and/or management of resources will be needed	39.1%
Technology (desalting, waste-water reclamation, interbasin transfers, rainfall augmentation, etc.) needed and will solve problems	36.2%
Population control will be necessary	15.9%
Agency and public cooperation/awareness will solve problems	7.2%
Regional problems will occur, but no general national shortages	23.2%
Problems are, and will be caused by excess resource use	10.1%
Problems will be caused by lack of money and economic pressures	5.8%
Uniqueness of water may cause problems	1.4%
	N = 69

9. Q. T140 "How far into the future can we reliably predict:"

	Years									
	1	1-4	5-9	10-14	15-19	20-29	30-49	50-99	100+	Don't Know
Population?	0%	0%	7.2%	20.3%	10.2%	42.0%	10.2%	7.2%	2.9%	0%
Water needs?	0	0	7.2	18.8	10.2	36.2	10.2	11.6	4.4	1.4
Economic growth?	0	2.9	11.6	18.8	7.2	34.8	4.4	8.7	5.8	5.8
Social change?	8.7	15.9	21.8	29.0	2.9	8.7	5.8	1.4	0	5.8

10. Q. T141 "How urgent are the regular programs of your agency?"

Very urgent - 13.2%; Urgent - 33.8%; All urgent, some very urgent - 4.4%; Somewhat urgent - 17.6%; Some are, some are not urgent - 13.3%; Not very urgent - 16.2%; Not urgent at all - 1.4% N = 68

11. Q. T142 "Do you believe that it is important to build projects now which have capacities far beyond the requirements for existing needs?"

Yes - 58.8%; Depends on the type - 5.9%; No - 35.3%. N = 68

12. Q. T142 "Why?" (Build big now)

Yes		No	
Growth assumed	30.9%	Flexibility/maintain options	16.2%
Economy	11.8	Economy	14.7
Reliability/ flexibility	11.8	Water needs priority low	2.9
Limited resources	7.3		
Build for size, not contingency	1.5	No answer	33.8%
	63.3%	N = 68	2.9%

NOTES--CHAPTER VI

13. Don Fabun, The Dynamics of Change, Prentice-Hall, 1967.

14. Peter W. Whitford, op. cit., pp. 8-9.

15. Florence R. Kluckhohn, op. cit., pp. 348-349.

16. Because of the challenge involved in T143(a), the strength of the unpopular position was one piece of evidence confirming the interviewers confidence in the honesty of the planners' responses, and attempt at self analysis.

17.

		Q.T143(a) Reference State			
		Future	Ambivalent	Past	
D - Age Years	Less than 40	23	1	10	34
	40 and over	19	4	5	28
D - Grade Planner	GS-11 & 12	27	3	11	41
Supervisor	GS-13,14,15	15	2	4	21
D - Agency Experience Years	Less than 10	20	2	9	31
	10 and over	22	3	6	31
		42	5	15	62

No relationship is significant.

18. A similar outlook was expressed by 31% of the planners in their comments on Q. N45, Chapter VII, "Nature".

19. N=62, Chi Square=5.12, 2 degrees of freedom, level of signif.=0.10.

20. N=61, Chi Square=0.10, 2 degrees of freedom, level of signif.=0.01.

21.

		Q.T137 Sufficient Natural Resources?		
		Yes	No	
		53	16	69
D - Age[22] Years	Less than 40	25	11	36
	Over 40	28	5	33

D - Agency Experience[22]				
Years	Less than 10	23	11	34
	10 and over	30	5	35
D - Grade[23]				
Planner	GS-11 & 12	31	14	45
Supervisor	GS-13,14,15	22	2	24

		T139 Water short in the future?			
		Yes	Maybe	No	
Grade[24]					
Planner	GS-11 & 12	15	6	24	45
Supervisor	GS-13,14,15	2	3	18	23
		17	9	42	69

22. Relationships not significant.

23. N=69, Chi Square=3.37, 1 degree freedom, signifance level=0.10.

24. N=69, Chi Square=5.23, 2 degrees freedom, signifance level=0.10.

25. N=69, Chi Square=3.25, 1 degree freedom, level of signif.=0.10.

26. N=69, Chi Square=4.59, 1 degree freedom, level of signif.=0.05.

27. The relationships with water need and economic projections were similar but not quite as strong.

28. Q. 120 "Is there really a sense of rivalry between water resource agencies?"

    Yes - 59.4%; Yes, but justified/acceptable - 10.2%.
    No - 29.0%; Don't know - 1.4%. N = 69

29. Q. 122 "Some critics here accused your agency of using 'tunnel vision', that is, you look at solutions which will benefit your own (construction) program. Do you think this criticism is justified?"

    Yes - 31.9%; Partly - 10.2%; No - 56.5%, Don't know - 1.4%. N = 69

30. Q. P27 "Would you comment on your level of emotional involvement in the success or failure of the plans you work on?"

High or somewhat involved	67.1%	
Neutral or objective	31.4%	
Disillusioned	1.4%	N = 70

31. N=68, Chi Square=8.18, 2 degrees freedom, level of signif.=0.02.

32. N=68, Chi Square = 7.25, 2 degrees of freedom, level of signif. = 0.05.

33. N=68, relationship not significant.

CHAPTER VII

NATURE

Invariably, planning for water resources confronts men with the need to modify and "improve" natural systems to make them more compatible with man. Traditionally, this was done under the philosophy that men's actions were insignificant compared to the resources being developed, and in the belief that anything that aided man's physical or economic well being was good.

Image

Neither "nature" nor "environment" is a simple concept. Both words are value laden, have different meanings for different people, and change in meaning for the individual as he faces varying situations[33]. Thus, it is important to find out exactly what planners consider these words to describe, in order to give meaning to their opinions and attitudes about nature's influence on, and relationship to man. The breadth of the image held could control the range of alternatives examined in relation to the environment.

Webster's Dictionary[34] gives nature many descriptions, ranging from "the sum total of all things in time and space," through more limited versions such as "the primitive state of man" or "the natural (non-artificial) scenery, including the plants and animals that are part of it," to its use as a reference to the "quality" of an object. Environment is likewise defined as concisely as "a surrounding," or as broadly as "all conditions, circumstances and influences surrounding and affecting the development of an organism or group of organisms.

Two questions were asked to gain an insight into the planners' definitions of these concepts[1,3].

The nature image given by nearly half of the sample was a qualitative description, such as "virgin areas," "the natural landscapt," "non-polluted areas," and even "the complex interrenationships of an ecologic system." Forty-three per cent gave a simple description, without any value weighting, such as "wildlife, fish and birds," "trees and forests," "mountains," etc. Of the remainder, five people (7%) equated nature with the "total" environment and two gave parks, or a human centered activity, such as hunting or fishing[1]. From a probe to elicit whether or not their images contained man, 54 per cent said that it did not, 36 per cent said that it did, 7 per cent that there could be a few men in it, and two planners included primitive but not modern man[2]. Apart from one individual, who mentioned nature's quiet and solitude, nobody really exhibited a metaphysical ideal, such as describing nature as a place for spiritual renewal, for personal reflection or as a "touchstone" for fundamental truths[36].

The typical image of nature is a moderate and fairly pragmatic one, as was expected of men who came mainly from an engineering background. It contains visible and tangible features or objects[36], refers to conditions prior to the intrusion of western man, and rarely goes beyond a limited or controllable sphere[37]. The value descriptions used were mild, demonstrating some of the common subjective associations of nature (harmony, purity, reality) and contained some feeling of the influence of the traditional, or frontier ideals of man confronting the wilderness, with its challenge and potential.

Remarkably, only three times was water, once in the form of rivers and streams[38], and twice as the ocean, given as a principal sort of the image. Possibly, this was because the major focus of their planning seemed too obvious to mention, or perhaps because of its centrality to their work, planners no longer view water as a truly natural substance. A preconception carried into the study was that most planners would see nature and the environment as essentially the same thing. However, as shown, only five people gave their image of nature in environmental terms. A major omission was the lack of any mention of natural forces, such as earthquakes, hurricanes, tides, etc. It could be that these are assumed to be beyond man's influence or as temporary events and thus are not seen as a normal part of nature.

The majority of the definitions of environment[3,39] were similarly down to earth, and limited in breadth. A division was made between concepts which contained only the physical surroundings of man, both natural and man-made, and those which subsumed the physical within the total social and economic world[40], including the psychological as well as the physical influences on the individual. Sixty-three per cent saw environment purely in its physical sense with the remainder giving it the broader more esoteric connotation[3]. What apparently interests planners is not an all encompassing abstraction, but those aspects of water and its related resources, both natural and artificial, which have environmental impact, and would be affected by agency programs. Interestingly, there is a relationship between agency and environmental perception. Corps planners saw environment mainly in physical terms, the FWQA and BuRec, increasingly in its broader sense (Table VII-1).

TABLE VII-1

Agency versus Environmental Perceptions[41]

Q. N46	Corps	FWQA	BuRec	
Physical Surroundings	32	6	6	44
Physical Surroundings plus Social Influences	11	6	9	26
	43	12	15	70

*Underlined values are those larger than would be expected if the relationship was due only to chance.

There were also faint indications at a low level of significance that the wider image is a function of office location, it being more frequently given by Western[42] planners.

A common claim in the current discussions of environmental problems, is that ecological damage caused by man has given rise to problems so severe and urgent that if extreme measures are not taken now, the world, or at least man and many of the higher species, could be doomed to extinction[43]. If this is true, it would indicate a need for a radical shift in planning priorities. Such a statement[5] was received with skepticism by the planners, although perhaps not as strongly as expected, with exactly half disagreeing, and only 10 per cent in complete agreement. Forty-one per cent did give at least some credence to such a radical viewpoint. This was offset to some extent by the most frequent comment, that while the problems are very urgent the time limit is too short (33%)[5a] or that the problems are just not that critical (31%). Other disclaimers were that the planners did not hold a doomsday view, that technology would prevail, or that they were not expert, did not know enough to judge properly. In view of recent publicity of the population crisis, it is surprising that only four men mentioned it as a prime cause of any disaster.

The fact that nearly two thirds (62%) only mildly agreed or disagreed, or were undecided, may indicate a large section of opinion which is swinging, or waiting for more evidence upon which to decide. It reflects a major aspect of environment discussed later, a feeling of confusion because few hard facts are available and so little is known or understood upon which planning or economic tradeoffs and engineering decisions can be based.

A hypothesis which received no support from either question was that the younger men would be more likely to exhibit an awareness of the social implications of water planning or to see the problems as more urgent than their seniors. The different environmental perceptions were evenly spread among all age and demographic groups.

A number of other dimensions were explored to give more depth to the nature image[4,6]. Only 36 per cent felt that current understanding of the long range consequences of man's changes on nature was adequate to good. Two thirds described it as from very poor to limited, with the weight at the bottom of the scale[4]. This reaction demonstrates a healthy awareness among planners that the results of their planning for natural systems cannot always be predicted[44]. Hopefully this should ensure a cautious approach to their work, but planning has not often been as careful as such a low state of knowledge would demand. One reason is that demands for action usually outweigh the need for caution. Another could be that natural side effects are mostly considered of minor impact and to have no economic significance.

The reasons why knowledge is seen as very limited seem to be threefold. It is the first indication of a deep sense of frustration exhibited by many planners in discussing the deficiencies of project evaluation techniques (particularly the benefit-cost ratio) for handling intangible factors (often nature based). There was a common feeling that if more were known about nature, rules and techniques enabling quantifiable measures could be developed[48]. Secondly, the answer demonstrates that the current weight of ecologic and preservationist criticism of their work has, to a greater or lesser degree, convinced planners that they know very little[49]. Finally, there is the traditional aura or sense of mystery surrounding nature (primitive, complex, even spiritual) that gives it some of its value in men's eyes, making it something to be enjoyed and coped with, but never to be fully understood.

The reaction to a number of commonly heard statements about nature was instructive[6]. Most planners feel that nature is robust and self healing, but apparently in contradiction, that it also has a delicate balance. There was some indication that those who said nature had a delicate balance were more prone to see it as being less robust[50]. While 60 per cent strongly agreed that the balance was a delicate one, only 49 per cent strongly agreed that nature was robust[6]. For the remainder who considered nature as both robust and delicately balanced, the apparent image is a system which can easily be disturbed, but which has the strength to make a full or partial recovery.

Fifty-nine per cent disagreed that untouched nature or unspoiled environment was abundant in the U.S., mainly in the more extreme category. Just 17 per cent fully agreed that nature was abundant, meaning that as many as four fifths of the sample had some doubts about the level of available resources of this type, reflecting the pervasiveness of man's influence on nature. Less than a quarter felt that nature was to some degree a hostile force, with 63 per cent strongly opposing this view, which again demonstrated that major natural disasters were not really considered part of nature. Although a minority had man in their image of nature, 96 per cent agreed that man was a part of nature. This would tend to follow the popular concept that while man is an animal, yet through his reasoning powers, he occupies a special position in nature's scheme of things. Thus in planning for nature per se, man is not included except as the reason for and recipient of the effects of the changes.

The final part of this series was designed to elicit the planners' feelings about the morality of man's manipulation of nature. Planning seeks to alter nature for man's benefit, and presumably the justification of a need has been indicated. Surprisingly then[51], planners split very evenly on this question, just under a half agreed to some extent that man had the right to control nature, but 53 per cent felt that he did not[6]. In fact, 40 per cent strongly disagreed with this viewpoint. A possible reason is that many planners feel that not enough is known about nature to give them the right to control all other things. There was a positive and significant relationship (Table VII-2) which indicates that those who felt that knowledge was low were against man's control, while those who thought it was high felt that man should be able to direct the future of other species. The briefer a planner's experience the less likely he is to feel that man should control nature, and vice versa. Weaker relationships showed that older planners or those at higher grade level also felt man should have control. There was some indication that Western and Northeastern planners were doubtful about the morality of man's total management of other species, while those from the South and Midwest held the opposite view (Table VII-2). One might

TABLE VII-2

Morality of Man's Control over Nature versus Knowledge of Nature,[6] Age, Grade and Agency Service

			Q. N39f Man has the right of control over all living species			
			Agree	Unsure ?	Disagree	
			31	2	37	70
Q. N38[53]	Knowledge of Man's consequences of Nature	High	16[52]	0	9	25
		Low	15	2	28	45
D - Age[54]	Years	Under 40	14	0	22	36
		40 & over	17	2	15	34
D - Grade[55]	Planner	GS-11 & 12	18	0	27	45
	Supervisor	GS-13,14,15	13	2	10	25
D - Agency Service[56]	Years	Under 10	10	1	24	34
		10 & over	21	2	13	36
D - Location[57]	West plus Northeast		19	2	31	52
	South plus Midwest		12	0	6	18

expect those from the West to show this viewpoint, with their greater contact with the wilderness regions of the United States, but it is more difficult to explain the Northeastern reaction. Perhaps because they see so little of nature which is not affected by or under man's control that this has caused an overreactive desire for the natural way of things. The response of the shorter service, younger men, in this case confirms the preconception that youth would be associated with greater environmental awareness, and would have less apparent desire for material solutions to problems. The longer the service, the more planners absorb the agency's viewpoint, which for the Corps and BuRec, focuses on construction solutions and thus has a man dominant philosophy.

An alternate explanation for the strength of those against man's dominance (not verified by this survey), is that it reflects the growing concern about the number of species seriously threatened or otherwise damaged by man's activities, with the result that man's control is seen as harmful and therefore no longer desirable. Less worthy, but yet another possibility, is that the planners gave the type of response on this question that they felt was socially acceptable. (However, other questions which were considerably more personally challenging apparently elicited very frank responses and demonstrated the desire of the interviewees not to give agency viewpoint answers, but as close to their real feelings as possible.)

In Chapter II, the complex nature of water, and some of the problems and concepts men have of it were mentioned. To round out this discussion of the planners' images of nature, some of their beliefs about water were explored.

They were asked whether they felt water was primarily a market commodity, or a unique good with a special value not measurable in terms of price[7]. Nearly eighty per cent put water in the special value category while just sixteen per cent saw it as a marketable good. Asked to agree or disagree with the statement that "water as a necessity for life should be free to all men," a bare majority, 56 per cent, disagreed (49% strongly), while 40 per cent supported this viewpoint (31% strongly). Both answers show that planners definitely question the economists' view that water be treated like other factors of production[58]. In doing so they also support Bruner and Farris'[59] concepts of a prevailing "conventional wisdom" in water philosophy. They show an agreement with the idea that price is an unsuitable allocative factor in water administration, and that demand aspects are relatively unimportant.

Two other questions in this series add to these concepts. Eighty-seven per cent said that water is a central factor in determining economic growth and 83 per cent held the viewpoint that the highest use of water is to serve the physical needs of man[8]. These answers point to acceptance of a third aspect of the "conventional wisdom," which is that an increase in water supply is a necessary if not sufficient answer to water problems. The latter response also shows that for planners, water has its greatest importance only through its association with human activity. The awareness that water has a "use," or is central to the maintenance of an immense number of natural processes and the survival of all animal species, many of which are beyond man's needs or control, is either missing or relegated to a position of secondary importance[60].

Together with the earlier response that planners did not view nature as a hostile force, a general picture of water and nature is indicated. They are viewed as simply resources which if not used by man would be wasted or useless. Evidence of the "special" character of water and some of the highly emotional beliefs giving rise to many of the externalities which make its efficient allocation so difficult is clear. The importance of water as a key element in human development is a very strong image.

A major omission in rounding out this picture was our failure to assess planners' beliefs in the relative importance of water versus other natural resources in determining man's welfare.

Man versus Nature

Earlier, the claims by psychologists of the potential importance of man's perceived relationship to nature in terms of his opinions and behavior in other situations were noted[61]. The attempt to examine these attitudes was somewhat less than successful, due to the multi-dimensionality of the probes used[9]. In her examination of value differences in five dissimilar cultures, Kluckhohn held that in America, with its history of conquering all natural and man-made obstacles that impede progress, a "Man commands Nature" position should be expected. Also, since our interviews were with engineers and planners in agencies which have demonstrated their ability to solve most physical problems, the hypothesis that the men sampled would have a "Man over Nature" attitude seemed an obvious one.

However, in response to the statement that "man has the potential ability to control world wide natural phenomena such as earthquakes and hurricanes," 69 per cent disagreed (59% strongly) with only 27 per cent showing some level of agreement[9]. With a more limited concept, that "man has learned to change and control nature enough so that he can coexist with it with low damage or risk to either," a bare majority (53%) said that this was possible, and only a third without qualifications. Forty per cent felt that man does not even have this power[9]. Thus, the indicated viewpoint is just the opposite to that hypothesized. Planners apparently feel that nature dominates man.

It is important, however, to relate these perceptions to the images of nature. Not one man included in his description of nature the comparatively rare geophysical outbursts used to determine the possible extreme limits to man's control. It was suggested that the reason for this was that, because they are seen as beyond his powers, man places them in a special category, something different from the normal nature considerations of planning. After all, "nature" is commonly seen as something to be protected, or as a source of resources to be used for man's benefit. Planning for earthquakes, hurricanes, etc., is done in an entirely different framework, on a contingency basis as a self-protective measure, without thought being given to productively using or harnessing these forces, or that man's efforts could interfere with their contribution to a natural process or cycle[62,63]. The responses received, that earthquakes, etc., are beyond even man's potential abilities, while man can coexist with nature, tend to bear out the existence of this dichotomy. However, even at the lesser, or at least, more usual degree of control implied by "coexistence" and "minimum damage," the outlook demonstrated is cautious and limited. One reason could be the low understanding of nature that is felt to exist[64]. Another is methodological, the statement used[9] requires an assessment along two dimensions, the ability to coexist and the amount of damage or risk involved[65], thus causing some possible confusion. A third possibility is that because it is a more subtle process than the direct confrontation of natural forces, coexistence was actually seen as implying a much higher degree of environmental control than originally envisioned in designing the survey.

Unfortunately, only one question attempted to assess, albeit indirectly, planners' perceptions of their influence on the structure and operations of major biological systems. The reaction to the statement that "man can presently change nature on a world-wide scale, but cannot always predetermine the changes that will occur," was that 79 per cent agreed (59% strongly), with only 16 per cent disagreeing[9]. Because the statement had two quite different dimensions, the meaning of this response is confused. However, where full agreement was given, without apparent questions being raised, it can probably be assumed that the respondents felt that both sections were valid. Man can influence world-wide ecosystems[66], and man does not understand or is not able to predict the results of his efforts[67]. If this is so, for the first time, this gives a definite majority (nearly 60%) that sees man with a significant degree of power over some aspects of his environment. The image that is emerging is that man can disrupt or damage natural cycles and equilibria, but that he cannot per se control the forces constituting them.

There were also definite signs of a basic confusion between control over the biological and physical aspects of nature and between water and other natural resources.

Table VII-3 gives some demonstration of the type of control or effects that were envisioned.

TABLE VII-3

Man's Influence on Nature

N43[10]		N44[11]	
Examples of man's major positive contributions to nature		Examples of man's major negative effects on nature	
None	20.0%	None	1.4%
Man centered, economic[12]	28.6	Resource exploitation[12]	20.0
Benefits man and nature	12.9	Human failings, limitations	2.9
Rehabilitation of damage	17.1	Lack of planning, foresight	5.7
Nature centered	21.4	Types and descriptions of damage[12]	70.0
N = 70	100.0%	N = 70	100.0%

Supporting the idea of man's having had mainly a damaging influence, one in five felt man had done nothing to help nature at all, with 17 per cent giving rehabilitation measures as a positive act on man's part. About 41 per cent felt that in helping himself, man had contributed to nature in some sense, which fits in well with the higher number who said man was a part of nature, and also, with the contention that planners see nature's value only in its function as a source of resources for man's use. Ecologists might also argue that such "aids" as biological manipulation are not an unalloyed good, since they tend to reduce species diversity and thus lower the stability of the ecosystems involved. Only a fifth of the sample saw a purely positive contribution to nature from man. But even here, that contribution was simply to set it aside, or protect it from further changes by man.

Most of the negative examples reflected the growing awareness and concern about such environmental damage as air and water pollution, garbage and the destruction caused by engineering works (dams, highways, etc.). The remainder were not just based on the physical expressions of man's damage to nature, but on the underlying motivations and failings giving rise to them. This is important, because it demonstrates some awareness that there is a need to go beyond our present reliance on a "technological fix" to meet the problems being faced.

None of these answers really alters the initial impressions given. These are that planners do not feel that man can dominate nature, rather they see nature's forces being beyond his powers, with man only in a position to destroy or disrupt its processes, or at best, to be able to restore nature to something approaching its original form before man's interference. Such an outlook has considerable significance for policy makers in designing or considering possible alternative environmental enhancement measures. It implies that programs can expect a definite upper level of achievement, or point of diminishing returns, beyond which efforts would simply be a waste of resources, money, time, and manpower. It means doing what can practically be done, and accepting any losses thereafter.

Very little difference in these attitudes among the various groups of planners was discernible, although there was an indication that the more experienced a planner becomes, the more likely he is to have lost any earlier enthusiasms he might have had about man's abilities (Table VII-4). The longer the man has been in planning, and to a lesser degree, the higher the grade, the more likely he is to agree that man cannot control natural forces.

TABLE VII-4

Service as a Planner versus Man's Perceived Ability versus Nature[9]

Q. N42a Man has the potential ability to control worldwide natural phenomena . . .

D - Planning Service[68]		Agree	Undecided	Disagree	
Years	Under 10	14	0	24	38
	10 & over	5	3	24	32
		19	3	48	70

The existence of relationships between the perceptions of man's abilities versus nature and his other attitudes were not very clear or consistent. For instance, it was expected that those who felt that man can control nature, would be more likely to favor such projects as the major interbasin water transfers. However, this was not so. A majority of planners (71%) were in favor of transfers and there were no significant relationships between that opinion and the perceived ability to coexist with or control natural forces[13,69].

There were indications, on the other hand, that those who had the greatest confidence in their own powers as decision makers or felt that they had a directive rather than simply a service role as planners, were more likely to rate man's abilities higher than nature's (Table VII-5). It is interesting to note that these planners also tended to be more likely to be optimistic in outlook than their counterparts.

The probable reason for these associations is quite apart from any real nature connotation. Those who feel that man dominates nature are directive in outlook, are optimistic and show more positive or assertive personalities than those who feel that their job is to serve the public, who feel dominated by nature, or are gloomy by choice. The evidence is not really strong enough to consider our measures of the man versus nature perceptions as good indices of personality type, though better designed ones might do so.

Man and Nature

A frequent argument for the preservation of as much nature as possible in an untouched state, is that experience and contact with nature provides a valuable contribution to the health and physical and spiritual welfare of individuals. Thoreau saw nature as the source of his inspiration and as a refuge from the "follies" of society[75]. As environmental activist David Brower puts it, it is "places where . . . we perceive instead of just looking, where we learn to listen a little and talk less, where we consider our beginnings, and our beyondings, where we learn to absorb, and to respect, and remember."[76] Others describe wilderness as "a benchmark or touchstone," "a place for new perspectives," and talk of its value "to individual men (as opposed to mankind) as balm, quiet, solitude . . . ," a place "to catch a breath."

Very little evidence of such feeling was exhibited in the planners' images of nature. Yet, because of the emotional weight of these claims, and since they are normally raised by the most severe and vociferous critics of government environmental policy, an exploration of some of these more metaphysical dimensions of nature was attempted.

In view of its greater emotional appeal and the prevailing climate of public opinion about nature, a strong preference for natural over man-made beauty (60% versus 4%) was demonstrated[14]. However, a large proportion (36%), classed themselves as ambivalent. More revealing were the reasons justifying these answers. The most frequent reasons given for preferring

TABLE VII-5

Man versus Nature Against Role Perceptions

		Q. N42a Man has the potential ability to control world wide natural phenomena[9]			
		Agree	Undecided	Disagree	
Q. S81e[70] Who should decide what the best plan is?	Planner/[71] Agency	12	0	15	27
	Congress/ Public/ States, etc.	6	3	31	40
		18	3	46	67

		Q. N42c Man can coexist with nature[9]			
		Agree	Undecided	Disagree	
Q. S81d[72] Who should decide alternatives to study?	Planner/ Agency	28	1	11	40
	Others[71]	8	3	16	27
		36	4	27	67
Q. P25[73] Present role as a planner	Directive	10	3	3	16
	Non-directive	27	2	25	54
		37	5	28	70
Q. T135[74] General outlook	Optimistic	31	5	17	53
	Pessimistic	5	0	11	16
		36	5	28	69

natural beauty were that it is irreplaceable, unique, or beyond man's abilities to duplicate (27%), and because it is aesthetically better, its beauty is complete or balanced (19%)[15]. A few spoke of its timelessness in creation and its ability to endure beyond man's efforts. Only five men gave as their argument that nature provides a deeper quality of experience, or that it has spiritual overtones. Of those ambivalent or for man-made beauty, the principal reason given was that man can improve on nature, with man-made objects or structures (reservoirs, buildings, bridges, etc.) being able to enhance nature rather than detract from it (11%). Other answers were that man's art, actions (ballet), etc. are beautiful, that there is order and utility in man's works, and that a man's creativity is a growing thing, while nature's is a static quality. On balance, reflecting the general nature over man opinions discussed earlier, the most impressive aspect of natural beauty was apparently that it is something that man cannot better, or control, or replace[77]. Again, very little evidence of other than a fairly pragmatic outlook was revealed.

Similar attitudes were shown about the value of wilderness[16,17]. Sixty-nine per cent felt that the gains of the preservation of a wild river outweighed the losses, with 16 per cent placing them in balance or ambivalent. Sixteen per cent said that the losses are greater than the gains[17]. The major gains given were the preservation of "nature," such as wildlife habitat or ecological systems, maintaining the "natural laboratory," and wilderness regions (30%), and that the destruction of natural, or unique, beauty (24%) was prevented[16]. Thirteen per cent saw wilderness areas as providing for the future, some in terms of leaving areas to show the way the country used to be, a historical record, and others, more practically, to ensure future pure water supplies. Eleven per cent gave the benefit of wilderness as its use for recreation or sports. Spiritual or vicarious values were mentioned by only a few, 10 per cent talking of psychic renewal, or of the vicarious benefits of simply knowing that such areas are available for enjoyment whether or not the opportunity to get to them is available. Another 19 per cent also gave metaphysical benefits as a secondary gain. The total of 29 per cent is the highest percentage on any one question directly demonstrating these perceptions.

The biggest single group saw the major disbenefit of a wild river as the economic or monetary one (69%)[16]. The prevention of all beneficial uses other than limited recreation and losing the opportunities for developing water supply, power, irrigation, etc., were mentioned. Other losses seen were the elimination of mass recreation opportunities (wild rivers providing for an elite usage) and the ability to prevent damaging floods, to enhance the flow regime by control, or to provide more beauty in the form of a reservoir.

Finally, the issue of whether or not the value of a wild river is affected by structures in their headwaters was raised[18]. Seventy per cent said that the value was affected, the remainder that it was not. From those in the majority, a fairly even division of opinion emerged. Twenty-one per cent said that the value was raised, since flows became more regular, 23 per cent felt that the quality was decreased, and 26 per cent were ambivalent, with the change depending on the river, the type of development, or the level of control. (If too severe, the value drops; if it just regulates or smooths the flows, the river can be enhanced.)

This last probe gives more insight into the planners' perceptions of man versus nature. In this specific case, nearly half felt that man can, at least in some instances, improve on nature, and nearly another third didn't see that structures would decrease its value. This is a somewhat higher opinion of man's abilities than was displayed in other areas, particularly the evidence that only a fifth saw man's chief influence as a destructive one. The probable explanation is that these planners are familiar with the type of control that can be exercised on water and have much more defined ideas as to what constitutes good or bad effects. It certainly points to a need for a tighter definition of the aspect of nature against which man's powers are being assessed in order to get meaningful results. The evidence of our specific case of man versus hurricanes and earthquakes may be considered fairly valid. Other levels of control, atmospheric control, ecosystem influence, etc., need more detailed examination.

There is little evidence to contradict the earlier assertion that, overall, the metaphysical values given to nature are quite low. At the very least, it shows that planners are not generally willing to verbalize such beliefs, if they do hold them. This may be due to a natural embarrassment at exposing some of their basic faith. It may show an unwillingness to introduce emotion into decisions about engineering works. It may be a dedication to economic goals. Whatever the reason, it implies that when faced with claims of this type, the planner will probably publicly discount or reject them. While emotional appeals may be a viable tactic for environmental groups to use in public, when placing their arguments before the agencies a definite change in direction is called for. The argument that will persuade planners needs to point out the specific tradeoffs between different alternatives and to provide as much factual or economically based evidence as is possible. Some groups, notably the Sierra Club, appear to be increasingly aware of this fact.

The down-to-earth, practical view of nature as a source of economic and "useful" resources persists. The tradeoff, as in the wild rivers question, is seen largely between the economic values and preservation. The reasons for simple protection are mixed and do not provide a direct counter to the monetary losses. All the motives (to maintain ecosystems, preserve beauty, to provide for our descendants, supply recreational opportunities, etc.) are important, but they each apply to a different degree in different cases. None have the immediate weight of economics. If the demand for a priority ranking or some form of uniform tradeoff procedure could be met, much of the confusion characterizing both the planners' views on nature and the agencies' enforcement of the laws concerning the environment might be eliminated. One possible method to do this was suggested by Willeke[78]. It is the use of opinion sampling techniques to determine regional or local priorities. Another approach would be to hold public referendums on alternatives. This is not only more expensive, but gives answers only after major value judgments have been made.

Nature and the Public

Much of the pressure on agencies for environmental preservation comes directly from the public. The public view is often that planners simply shrug off public demands as being uninformed, too emotional, or based on verbal but not genuine concern. The planners were thus asked to assess their feelings about the public.

The initial reaction was quite positive, 53 per cent said that they thought that most people were concerned about preserving nature[19], and 59 per cent that the public would be willing to make some sacrifices to save the natural resources[21]. Unfortunately, the comments were more cynical[21,22]. Amplifying the first answer, only six men felt that people were highly motivated, or had purely unselfish concerns. Thirty per cent said that publicity had been responsible for arousing the public or that the public viewpoint was dramatized by the media, letters, demonstrations, etc., without a genuine public awareness of the problems or costs. Another 11 per cent (27% if secondary comments were included) said that the concern was limited or was felt only by those who perceived they would be directly affected; that it resulted from the fear of ultimate destruction; what could be lost to mankind in terms of recreation, sports, etc.; or that it didn't go as far as man being willing to reduce his standard of living. A few saw the issue simply as an emotional response, as a "motherhood and flag" case[20].

The comments of those giving a purely negative response were similar. Twenty-four per cent said that people were selfish, concerned only with economic or material goals, that they would not make sacrifices, or that for the public short-term gains outweighed long-term losses. Sixteen per cent claimed the public didn't understand or realize what would be lost, or that because the majority are city dwellers, they don't have the opportunity to use or appreciate nature anyway[20].

On the issue of public willingness to sacrifice, only a few saw a genuine concern. Just three men felt the public would accept a higher tax burden, bond issues, or forego development. The largest number, 30 per cent, claimed that any sacrifice would have to be limited to indirect means (e.g. through taxes) and that few people would accept the necessity for direct, out-of-pocket payments, a drop in living standard, or the reduced use of automobiles. Another 19 per cent said that the public would pay if directly affected, but that the extent of the payment would vary by the extent they would be hurt. Ten per cent saw need for continual pressures on the public to keep them concerned[22].

These responses indicate that while the planners felt that they should show trust in and concern for the public, their real feelings are that people aren't really aware of the problems or willing to pay, and that when called upon for action, they will be recalcitrant[79]. Thus a feeling of mutual distrust between planner and public apparently exists, which must be overcome if the planning for people and nature is to coincide.

Summary of Attitudes

The evidence so far has been of a pragmatic, middle-of-the-road outlook, partly the result of engineers' natural caution about subjective analysis and partly because nature is felt not to be well understood. Nature is not seen as abundant or very stable, yet is considered robust. Man occupies a special position, of nature, yet not in it. Water has a number of unique qualities in these men's eyes. It is essential to life. It should not (even cannot) be allocated according to the normal forces of the marketplace. Yet the value of water and of nature in general, is largely attributed to its contribution of resources to man. Major geophysical forces are seen as beyond human powers, but man's disruptive effect on biosystems and his ability to enhance limited natural features, such as rivers, are given more credence. There was an apparent unwillingness, directly, to express nature's possible benefits in terms of psychic gains, or to see environment as more than a physical phenomenon. The planners appeared to distrust the public's depth of commitment to nature, while conceding at least a superficial concern.

Policy

The remaining aspect of this analysis of attitudes towards nature which can be considered in the light of the foregoing opinions, is the question of the direction that planners feel should be followed by national environmental policy.

The above is a complex and somewhat confused picture, but no more so than exists elsewhere. A Congressional White Paper[80], preceding the National Environmental Policy Act of 1969[81] stated:

> "We live in a period of social and technological revolution in which man's ability to manipulate the processes of nature for his own economic and social purposes is increasing at a rate which his forebears would find frightening . . . the effects on man himself of the changes he has wrought in the balance of great natural forces . . . are at best dimly perceived, and not at all well understood."

In the same colloquium, an argument arose over the state of the art of ecology. Some scientists claimed it had already established enough basic principles to guide industry and government, others felt that its studies were still in the formative stage[82].

Concerning the value of man's relationship with his environment, some scientists would go much further than the men in our sample. For example:

> ". . . the way man deals with the environment is basic to his behavior. For psychological growth, stimulation and contact are sought and welcomed . . . there is a link between complex environments and creative personalities . . ."[83]

To add still more to their problems, the planners' attitude that water is a unique, non-economic good, is severely challenged by a number of economists, such as Hirschliefer[84]. He feels that it should be distributed, along with other basic resources, according to strictly economic criteria.

The caution already shown in their opinions, the profusion of ideas and the conflicts in policy demands[85] are further emphasized by the policy directions actually chosen by the planners (Table VII-6).

TABLE VII-6

Preferred National Policy with Respect to Nature[23]

Preferred National Policy with Respect to Nature[23]		
Primarily nature over man	25.7%	
Balance - compromise	55.7%	
Primarily man over nature	18.6%	
	100.0%	N = 70

Most of the planners did not want to stop development, but neither did they want to make too many irrevocable decisions. Man's needs must be balanced against nature's. Where losses have occurred, they must be accepted, but without doing too much more to untouched areas without more knowledge. Man must begin to recognize the need for recycling of natural resources and to evaluate the tradeoff between the long-term needs of nature versus the comparatively short-term welfare of men. At least a part of nature must be allowed to survive.

A quarter, the ultra-cautious, wanted to put nature first. Man's impact must be minimized. The environment and nature must be protected, kept healthy and robust, and even given priority over man while more study is made to find out what is equitable and safe. The remainder were most concerned with man. They felt that nature must serve man; that nothing should inhibit man's survival and progress. Nature must be controlled.

A striking feature of this choice is that it was seemingly unrelated to the images discussed previously. It was expected that those who would opt for a man over nature or even a balanced policy would be more likely to consider nature as robust, non-delicate and hostile. Resources would be seen as abundant and the environmental crisis as less urgent. The image of environment would be a physical one, and water would be seen as a unique good in its relation to man's survival. The morality of man's control over nature would be unquestioned and a preference for man-made, or ambivalence over natural beauty was expected. Man's works would be viewed as enhancing nature, since it helps man. Man would be seen as relatively strong with respect to nature. Only one of these expectations, the preference for man-made beauty showed a significant relationship. A very weak indication had those with a man over nature policy outlook giving man the moral right to control other species (Table VII-7).

TABLE VII-7

Planners' Preferred Nature Policy versus Image and Demographics

		Q. N40 Nature - Policy Choice			
		Nature over man	Balance	Man over nature	
		18	39	13	70
Q. N47[86] Which is worth more, natural or man-made beauty?	Natural	13	25	4	42
	Ambivalent	5	14	6	25
	Man-made	0	0	3	3
Q. N39f[87] Man has the right of control over all other living species.	Agree	7	15	9	31
	Undecided	0	2	0	2
	Disagree	11	22	4	37
D-Age[88] Years	Under 30	3	10	1	14
	30-40	7	11	4	22
	40-50	4	13	1	18
	50 & over	4	5	7	16
D-Time in Grade[89] Years	0-3	9	21	2	32
	3+	9	18	11	38
D-Agency Service[90] Years	Under 10	9	22	3	34
	over 10	9	17	10	36
D-Location[91]	West, Midwest	13	22	7	42
	South	4	8	6	18
	Northeast	1	9	0	10

The most probable reasons for this seemingly confused picture is uncertainty. We were asking planners to articulate ideas and formulate positions on concepts about which they had given little thought, if they had considered them at all[92]. The complex of personal beliefs and perceptions surrounding nature are so subjective that inconsistencies are inevitable. These factors alone would greatly reduce the possibility of a coherent picture. Secondly, some of the hypotheses we formulated were tenuous, based more on our own biases than reality. Thirdly, faced with a complex problem, the natural instinct is to choose the middle path. With the majority doing this, the direction and meaning of the relationship of this attitude to others is complicated.

Some of our preconceptions about the variations in policy attitude among the different groups of planners did receive some support (Table VII-7). The longer a man had served, the longer he had been in grade, the older men, all tended to prefer a man dominates nature policy. Another test also showed geographic variation, the planners of the West choosing a nature policy, the Northeast a balance, and the South and Midwest a man dominant position. There was no apparent variation in the preferred policy between the different agencies.

Finally, it is instructive to consider the differences between the preferred policy, the policy that the planners feel is actually being implemented (Table VII-8), and the policy as set down by Congress in 1969[93].

TABLE VII-8

Planners Perceptions of Present Nature Policy[24]

Primarily Nature over Man	18.6%	
Balance - compromise	35.7%	
Primarily Man over Nature	22.9%	
None - limited policy	22.9%	
	100.0%	N = 70

The major difference between the preferred (Table VII-6) and actual policy choices of the planners is that over a fifth felt that there was little or no defined policy. Some said that the government was doing nothing, some that the policy was that of laissez-faire or benign neglect, and others that while there is a good deal of lip service, little or nothing is accomplished. The shift occurred mainly from those who preferred a balanced policy, but there were also losses from the nature dominant faction.

The largest single viewpoint saw government taking a compromise position. The most frequent comment was that things are changing, that while nature used to be exploited, a balanced or even protectionist stance is now taken. The extremes offset each other. The number of planners who said that we still exploit and abuse nature, about equalled those who felt that things were actually going too far towards preservation, that we are currently over-reacting or over-compensating against development.

Thus, some cynicism about current policies was demonstrated, with the more idealistic nature centered and balanced preferences being discarded for a more pragmatic reality. The large number who saw no policy at all, may reflect confusion about which of the many laws is applicable, a questioning of the motivation behind these laws, or even a lack of knowledge of the content, or existence of the laws themselves[94].

However, a comprehensive policy statement does exist[95], which applies to all federal agencies, and should be understood by planners, particularly those in water resources. In fact, when asked to discuss the laws that had influenced the quality of planning over the last ten or twenty years, only a third of our sample mentioned this act, and just five men said that they considered it to be one of the most important pieces of legislation of this period[96].

The policy set down largely agrees with the compromise (and mixed) viewpoint desired by the majority of planners. In part, it states:

> "To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment or biosphere, and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; . . . assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings . . . attain the widest possible range of beneficial uses of the environment without degradation, risk or health to safety . . . preserve historic, cultural and natural aspects of our natural heritage, and maintain wherever possible, an environment which supports diversity and variety of individual choice . . . achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities . . ."
> " . . . Congress recognizes that each person has a fundamental and inalienable right to a healthful environment, and that each person has a responsibility to contribute to the preservation and enhancement of the environment."

This act places man first, but wants to protect the options of both the man and nature dominant factions. Man must live, but nature must be protected. Survival must be coupled with the achievement of a high quality of life. Nature is viewed both as a resource and as having a value beyond that of a mere resource. It states that men have a right to a good environment, but makes it clear that this is not cost-free. Public sacrifice and willingness to pay are declared to be necessary.

It appears that the motivations of both the Congress and the planners are basically the same but both are subject to similar irreconcilable demands and conflicts.

The question that remains is whether or not the direction of the actual policy as enacted is as perceived by the planners. This is more difficult, perhaps impossible to answer without the specific evidence of a series of case studies. That the approach is changing is unquestionable. In a recent draft of a new environmental policy proposed for the Corps[97], the following appeared:

> ". . . accord environmental aspects full weight in decision-making along with social, economic and technical considerations, and consider the environmental aspirations, needs, and preferences of the public, its elected and appointed officials and organizations and environmental interests."

The power of the preservationist lobby has been consistently demonstrated over the last few years in the concessions forced from the agencies in modifying, or delaying projects. However, in other instances, development interests have had enough weight to overcome environmental opposition.

The common lack of appreciation that a policy exists at all points to two possibilities. One is that those planners have never been confronted with these issues in their planning and thus have felt no need to find out what the official agency viewpoint is. The other is that the agencies need to conduct an educational program within their planning staffs to demonstrate what their environmental policies are, what laws are applicable, how they should be interpreted and applied and what division of responsibility exists. It is not enough to conduct seminars among the supervisors of the planning divisions if the information does not filter down to the working level[98].

Water Quality

The most rapidly growing environmental issue in water planning is that raised by the problems of water pollution. This provides a relevant topic for an examination of planner reaction to, and opinion about, possible actions with regard to a specific aspect of the environment, and how this relates to attitudes toward nature in general.

The primary problem was overwhelmingly seen as coming from untreated municipal and industrial sewage. Four-fifths of the planners mentioned both of these sources with an equal division as to which of the two was considered most important[25]. Other frequently given causes of pollution were sediments (22%), nutrients from the fertilizers in agricultural runoff (21%), and salinity, both natural and man induced (from oil drilling, overpumping, and agricultural flows)[25]. In addition, solid wastes, garbage, oil spills, feedlot runoff, pesticides, hot water, acid mine drainage, radioactivity, mercury, dredging soils, and the effluent from private boats, were mentioned. This was a fairly complete listing, but below the first choice, it was probably ordered in importance by the frequency of the men's contact with the particular problems rather than by how truly potentially damaging the pollution sources are.

In line with their generally pragmatic outlook on nature, a majority, 60 per cent, refused to be stampeded by the weight of publicity, viewing present water quality problems as somewhat less than serious, or as still being within reasonable bounds[26]. However, the largest single group stayed right in the middle, 47 per cent choosing the latter of these two categories.

Opinion as to what the future situation might be was fairly evenly split, just over half holding that water pollution would be a less pressing difficulty in the future, or at least not get worse, and the remainder that it would become more critical[27]. An interesting facet of these answers was that 18 per cent saw an impending change in the severity of this problem in about 5-10 years. Eleven men said that it would continue to increase for this period, then begin to fall, while one man took the opposite view, a decrease followed by an eventual increase. Regardless of the direction of change, the view that the next ten years will be very important, even a crisis period, in terms of man's relationship to environment, is very extensively held among these federal planners as well as in much of the ecological literature.

The main reason (40%) given for seeing a diminishing problem was the opinion that current efforts, with new institutional and legal solutions, will be effective[28]. Three people saw hope simply in today's climate of increasing public awareness, and two said that better technology and physical methods will be adequate. The primary cause for predicting an increasingly difficult task was that the problems are felt to be increasing at a faster rate than the development of solutions. Chiefly, the accelerating demands on facilities made by the growth in population are considered to be outstripping the building of corrective works. Another 13 per cent stated that pollution could not be eliminated until genuine motivation and effort are expended by the agencies. These people felt that so far insufficient money, men and resources are being allocated to the water quality field[28].

While the assessment of the present situation was evenly spread through the three agencies and the various planners, there were marked differences in opinion about the future of the problem between these groups (see Table VII-9). The younger men, the GS-11 and 12 planners (as opposed to their supervisors) and the less experienced men, were more likely to see future problems as growing, as being more serious. This perception of insufficient current effort and even distrust of their agencies' motivations apparently reflects some of the greater concern for nature shown by this same group in opting for a more nature centered approach to national policy. The agency differences showed that Corps planners tended to downplay any increase in the problem, BuRec planners gave it unexpected weight, while those in FWQA, who are most responsible in this field and could be expected to give the best estimate of its future, were ambivalent, unsure about its eventual direction.

Opinions in this specific area of environmental planning were related to the planners' general views about nature on one other question. As might be foreseen, those who were confident that man has the ability to coexist

TABLE VII-9

Assessment of Water Pollution Problem versus Age, Grade, Service, Agency, Perceived Ability versus Nature

			Q. N53 Problem of water pollution in future will be:[27]		
			More serious	Less serious or unchanged	
			32	36	68
D - Age[100]					
	Years	Less than 40	22	14	36
		Over 40	10	22	32
D - Grade[101]					
	Planner	GS-11 & 12	25	19	44
	Supervisor	GS-13,14,15	7	17	24
D - Planning Service[102]					
	Years	Up to 10	23	14	37
		Over 10	9	22	31
D - Agency[103]					
		Corps	15	26	41
		BuRec	11	4	15
		FWQA	6	6	12
Q. N42c[104]					
	Man has learned to change and control nature enough to coexist with it	Yes	13	24	37
		?	3	1	4
		No	16	11	27

			Q. N52 At present the water pollution problem is:[26]		
			Serious or very serious	Within reasonable bounds or not serious	
Q. N42c[105]					
	Man has learned to coexist . . .	Yes	11	26	37
		?	1	3	4
		No	15	12	27
			27	41	68

with nature were more likely to downgrade both the current situation and any possible increase in the magnitude of pollution in the future[106] (Table VII-9). This adds weight to an earlier generalization, which was that to examine attitudes toward nature for predicting planning behavior, it is necessary to confine attention to specific topics rather than to project from a generalized viewpoint.

In their day to day work on water quality control, planners must find answers to such problems as those caused by the constraints, legal or otherwise, that they encounter within their own agencies, how to quantify or trade off intangible benefits, and how and to whom to allocate the considerable costs involved.

The constraints on pollution control efforts were largely seen as being caused by limited legal authority available to the agencies (55%)[29]. Such factors as a lack of effective legislation[107], political interference and inability to combat special interest pressures, an over-dependence on state and local cooperation[108], and lack of adequate enforcement powers to punish offenders were all raised. The contribution to the potential growth in pollution problems because insufficient resources, money, men, data, and technology, are being allocated to the task was again raised (18%). A typical complaint was that they were never able to assemble enough evidence against a pollution offender to enable prosecution in a court of law and that even if they could, the agency was unlikely to press the issue that far. Five men complained that the agencies lack the dedication or motivation to really grapple with the issues[109]. The difficulty is that the Corps and FWQA, particularly, are in the position of having to depend on local cooperation to ensure the viability of most of their programs, while also having the responsibility to punish the same people for water quality violations. This dilemma points to the need to separate development and planning programs from the enforcement function. The Environmental Protection Administration could be a vehicle for such an approach, though as presently set up it serves all functions. Recent reemphasis of the Corps' authority under the Refuse Act of 1899[110] leaves it also as planner, constructor, and enforcer.

The inadequacy of the benefit-cost ratio as a measure of project worth is given some emphasis in the water quality field. Fifty-four per cent of the sample said that pollution control could not be justified using the existing benefit-cost approach, or without some means by which the benefits could be quantified[30]. Several men commented that the benefit-cost ratio was wrong for water quality, that it simply provided a means to justify a project, not to evaluate its worth. Others held that the alternative cost method as presently used to evaluate benefits where they cannot be directly evaluated, cannot, and should not be applied to water quality planning since it doesn't fully estimate the value of the improvements especially for health and human safety.

Finally, the fundamental question of "who should pay," which is so difficult to answer in environmental planning because of the problem of allocating costs according to benefits was raised[31]. The most popular response was the quick reaction, "the polluter of course." Second ranked was the general public, followed by the consumers, industries, the federal government and lastly local communities and interests. The most frequent qualifier to this choice was that it doesn't matter who pays directly, since the costs will eventually be passed to the public (28%)[32]. Others made the point that although the polluter should pay, the first problem was to identify who it is. If this cannot be done then there is no recourse but to go directly to the taxpayer.

Thus, it turns out that for the planners, the really important implication of this question actually is not "who should pay"; most of them accepted that the cost will finally be borne by the public. The crucial issue is the means by which this transfer should be made. The future of public acceptance of water quality programs may well hinge on whether or not the public sees itself as being directly penalized, as through tax increases, bond issues, or fines for illegal dumping, or makes the payment indirectly, through the increased cost of goods and services. As demonstrated earlier, the planner felt that the latter course is more likely to be acceptable than the direct out-of-pocket payment concept, since the public's concern for the environment was seen largely as a superficial thing, without genuine depth.

From the industry standpoint, although the question and initial conclusion may be the same, the ultimate means desired, as pointed out in a recent business review article in "Newsweek"[111] are probably different. Their question was:

> "Should the cleanup be paid for only by the company, or at least in part by a tax assessment?"
>
> And the answer:
>
> "One way or another of course the public will pay, either in higher prices for industries' products, or in some form of taxes. Given the choice, most businessmen would probably prefer to be subsidized for their pollution control out of the public purse rather than their customers' pockets--and until the issues are clearer, to spend as little as possible."

For industry, the more direct penalty would be the smaller volume of business caused by higher prices, thus the taxation route is preferred.

Among the planners some ambivalence existed. About 56 per cent gave the initial reaction that the "polluter" or "industries" should pay, indicating the feeling that business should not only have to clean up its own mess, but should also pay for it itself, without transferring this cost to the general public. For municipalities, this would mean payment for quality control by the local government through area and task specific bond issues or taxes. The remainder generally accepted that the problem is too widespread and complex to assign responsibility to any specific group of individuals and favored a direct payment by the public or financing through the federal government. Several advocated that the source of this revenue should be in the form of increased prices rather than through general taxation. One suggestion was that if the taxation method were used, it should be levied regionally according to the pollution loads. Others favored a nationally uniform program, ensuring equal costs to all.

QUESTION SUMMARY--CHAPTER VII

1. Q. N37 "One of the popular issues of today is a concern for nature. When you hear the word nature, what image comes to mind?"

Descriptions of features	42.9%
Qualitative descriptions	47.1
Human centered activitiy	1.4
Environment	7.1
Objects	1.4
	100.0%

N = 70

2. Q. N37 "With or without man?"

With man - 35.7%; With a few men - 7.1%; Without modern man - 2.9%; Without man - 54.3%

N = 70

3. Q. N46 "Would you tell us how you would define the environment?"

Physical, tangibles only	52.9%
Physical, tangibles plus noise, odors, etc.	5.7
Physical, tangible and intangible and quality	4.7
	62.9%
Physical plus interaction with other men	7.1%
Physical plus social world	8.6
Physical plus social and economic world	4.3
Physical plus social, economic, aesthetic, religious world	17.1
	37.1%

N = 70

4. Q. N38 "How would you describe our state of knowledge about the long range consequences of man's changes on nature?"

Very poor	20.0%
Poor	28.6
Poor but increasing	12.9
Know enough to realize limitations	2.9
	64.3%

Moderate	10.0%
Moderate and rising	4.3
Fairly good	10.0
Fairly good and rising	5.7
Good to very good	5.7
	35.7%

N = 70

5.* Q. N45 "Some ecologists claim that the problems of the environment are so urgent that solutions must be found within the next decade if we are to survive. How nearly do you agree with this viewpoint?"

Agree - 10.0%; Somewhat agree - 31.4%; Undecided - 8.6%; Mildly disagree - 22.9%; Disagree 27.1% N = 70

6. Q. N39 "Would you agree or disagree with the following statements about nature?"

		Agree	Mildly Agree	Unsure ?	Mildly Disagree	Disagree
a.	In most cases, nature is robust and self healing.	48.6%	27.1%	0%	11.4%	12.9%
b.	Unspoiled environment or untouched nature presently is abundant in the U.S.	17.1	20.0	4.3	18.6	40.0
c.	The "balance of nature" is a delicate one.	60.0	10.0	5.7	14.3	10.0
d.	Man is a part of nature.	91.4	4.3	1.4	0	2.9
e.	Nature is essentially a hostile force.	10.0	14.3	4.3	8.6	62.9
f.	Man has the right of control over all other living species	27.1	17.1	2.9	12.9	40.0

N = 70

7. Q. N100a "Which of the following two statements most nearly describes your feelings about water?"

a.	Water is a commodity which should be treated just as any other marketable good.	16.0%
b.	Water is a unique good with a special value which cannot be measured just in terms of it's price.	79.6
	No answer	4.4
	N = 69	100.0%

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* Comments on #5.

5a.	Time limit too arbitrary	32.9%
	Problem urgent but not critical	31.4
	Don't hold doomsday view	14.3
	Insufficient knowledge to judge	10.0
	Some irreversible changes have already occurred	8.6
	Man and technology will prevail	7.1
	Over-population a major problem	5.7
	Miscellaneous - non urgency	4.3

8. Q. N100b "Would you agree or disagree that:"

		Agree	Mildly Agree	Unsure ?	Mildly Disagree	Disagree
a.	Water, as a necessity for life, should be free to all men?	32.4%	8.7%	1.5%	7.2%	49.3%
b.	Water is a central factor in determining economic growth?	82.4	7.2	0	5.9	4.4
c.	The highest use of water is for it to serve the physical needs of man?	61.8	23.5	5.9	5.9	2.9

N = 68

9. Q. N42 "Regarding man's ability to control nature, would you agree or disagree with the following statements?"

		Agree	Mildly Agree	Unsure ?	Mildly Disagree	Disagree
a.	Man has the potential ability to control world-wide natural phenomena such as earthquakes or hurricanes.	17.1%	10.0%	4.3%	10.0%	58.6%
b.	Man can presently change nature on a world-wide scale but cannot always predetermine the changes that will occur.	58.6	20.0	5.7	4.3	11.4
c.	Man has learned to change and control nature enough so that he can coexist with it with low damage or risk to either.	32.9	20.0	7.1	15.7	24.3
d.	Man can seldom do more than defend himself against natural disaster.	34.3	15.7	1.4	24.3	24.3

N = 70

10. Q. N43 "Give a few examples of what you feel are man's major positive contributions to nature."

None	20.0%
Man-centered/economic	28.6
Benefits to man and nature	12.9
Rehabilitate damages	17.1
Nature centered	21.4
	100.0%

N = 70

11. Q. N44 "Give a few examples of what you feel are man's major negative effects on nature."

None	1.4%
Resource exploitation	20.0
Human failings/limitations	2.9
Lack of planning/foresight	5.7
Types and descriptions of damage	70.0
	100.0%

N = 70

12. Q. N43 Man centered--flood control dams, water supply systems, recreation facilities, air conditioning, etc.

Man and nature--biological management, birth control, water and soil conservation, etc.

Rehabilitation--clean up pollution, erosion control, reforestation, etc.

Nature--wildlife preserves, parks, wilderness areas, etc.

Q. N44 Human failings--war, social ills, political motives.

Damage--air and water pollution, garbage, pesticides, side effects of engineering, etc.

Exploitation--overcutting forests, overmining, etc.

13. Q. 106b "What is your opinion about the use of large scale interbasin water transfers?"

In favor of transfers	30.8%	
Conditionally in favor	40.0	(Protection of donor basins guaranteed)
Ambivalent	9.2	
Opposed	20.0	
	100.0%	

N = 65

14. Q. N47 "In your opinion, what is worth more, natural or man-made beauty?"

Natural - 60.0%; Ambivalent - 35.7%; Man-made - 4.3% N = 70

15. Q. N47 "In what way?" (Is natural beauty worth more?)

Natural	
Irreplaceable/unique/man cannot duplicate nature	27.1%
Aesthetic quality-balanced /diverse/complete	18.6
Depth or quality of the experience	7.1
Timelessness	4.3
Useful	1.4
No answer	1.4
	60.0%

Man-made/Ambivalent	
Man can improve on nature	11.4%
Man's creations--art, sports--are beautiful	2.9
No answer	22.9
	40.0%

N = 70

16. Q. N48a "What in your opinion is gained and lost when a river is preserved as a "wild river"?

Gains	
Preserve nature/ ecology	38.6%
Preserve beauty	24.3
Save for future	12.9
Spiritual/vicarious gains	10.0
Recreation use	11.4
None	2.9
N = 70	100.0%

Losses	
Economic/monetary	68.6%
Mass recreation use restricted to elite	10.0
Damage control/flow enhancement	10.0
None	11.4
N = 70	100.0%

17. Q. N48b "Do the gains outweigh the losses or vice-versa?"

Gains over losses	68.6%	
Ambivalent/don't know	15.7	
Losses over gains	15.7	
	100.0%	N = 70

18. Q. N49 "Do you think the value of a wild river is affected by a few dams in the headwaters?"

Yes - 70.0%; No - 28.6%; No answer - 1.4% N = 70

"Does the value go up or down?"

Value increases	15.7%
Up, more regular flows decrease peaks and increase low flows	5.7
Value increases (total)	21.4%
Depends on the extent of regulation	15.7
Depends on the particular river	5.7
Depends on the type of development	2.9
Gains balance losses	1.4
Ambivalent (total)	25.7%
Value decreases	22.9%

19. Q. N50a "Do you believe that most of the people in this country are concerned about preserving nature?"

Yes - 52.9%; Don't know/Ambivalent - 4.3%; No - 42.9% N = 70

20. Q. N50a

Yes - Why?	
Evidence of media/results of publicity	30.0%
Limited motivation, selfish concerns	11.4
People highly motivated, unselfish	8.6
Emotional response	4.3
	54.3%

No - Why not?	
People selfish, economically oriented	24.3%
Lack of appreciation or understanding of nature	15.7
	40.0%
No answer	5.7%

N = 70

21. Q. N50b "Would you say the general public is willing to make some sacrifices to save our natural resources?"

Yes - 58.6%; Don't know/Ambivalent - 1.4%; No - 40.0% N = 70

22. Q. N50b "Comment"

Yes	
Limited or indirect sacrifices only	22.9%
Depends on specific case, extent of involvement	7.1
Rising/need continual reminders	2.9
Will accept bond issues, taxes, etc.	4.3
	37.1%

No	
Unaware of problem	8.6%
Limited, no direct loss	7.1
Depends on specific case	8.6
Inflexible	1.4
	25.7%
No answer	37.1%

N = 70

23. Q. N40 "What do you believe should be the national policy with respect to nature?"

Primarily nature over man	25.7%
Balance, compromise	55.7
Primarily man over nature	17.1
Humanitarian	1.4
	100.0%

N = 70

24. Q. N41 "What is the actual policy being followed now?"

Primarily nature over man	18.6%
Balance - compromise	35.7
Primarily man over nature	21.4

24. (Cont.)

Humanitarian	1.4%
None - limited policy	22.9
	100.0%

N = 70

25. Q. N51 "What are the major forms of water pollution in your region?"

	Primary Source	Other Sources	Total
Municipal/untreated human wastes	39.7%	42.6%	82.3%
Industrial wastes	38.2	36.8	75.0
Sediments	2.9	19.1	22.0
Nutrients - agricultural runoff	2.9	17.6	20.5
Salinity - irrigation return flows	7.3	8.8	16.1
Salinity - from drilling/over pumping	0	11.8	11.8
Feedlot runoff	2.9	13.2	16.1
Solid wastes/debris	1.5	13.2	14.7
Oil spills/leakage	1.5	11.8	13.3
Thermal	0	11.8	11.8
Acid mine drainage	1.5	10.4	11.8
Natural salinity	0	10.4	10.4
Pesticides	1.5	5.9	7.3
Boating wastes (commercial and private)	0	4.4	4.4
Depletion of streamflow	0	2.9	2.9
Radioactive wastes	0	1.5	1.5
Mercury	0	1.5	1.5
Dredging activity	0	1.5	1.5
N = 68	100.0%	225.2%	325.2%

26. Q. N52 "Would you say that at present the problem of water pollution is very serious, still within reasonable bounds or not serious?

Very serious - 19.1%; Serious - 20.6%; Still reasonable - 47.1%; Not very serious - 13.2%
N = 68

27. Q. N53 "Will the problem become more or less serious in the future?"

More serious - 45.6%; More in long run, even if temporarily decreases - 1.5%; No change - 1.5%; Less serious in long run, but higher for 5 - 10 years - 16.1%; Less serious - 35.3%
N = 68

28. Q. N53 "Why?" (Problems increase or decrease?)

Increase	
Growth of problems greater than supply of solutions	36.8%
Lack of effort, desire	13.2
Technical inability	1.5
	51.5%
No answer	1.5%

Decrease	
Institutional/legal solutions powerful	39.7%
Indirect solutions, general public concern	4.4
Technology	2.9
	47.0%

N = 68

29. Q. N54b "In controlling pollution, what would you say that your agency's major constraint is?"

Lack of authority or power	54.5%	
Lack of resources	17.6	
Lack of motivation	7.4	
Restrictive benefit evaluation rules	4.4	
No constraints	4.4	
No answer	11.7	
	100.0%	N = 68

30. Q. N55 "Can pollution control be justified using benefit-cost analysis?"

Yes - 39.7%; Conditional, only if benefits can be quantified - 5.9%; No - Not with present B/C methods - 17.6%; No - 30.9%; Don't know - 5.9%. N = 68

31. Q. N56 "Who should pay for pollution control?"

		Primary Choice	Secondary Choice	Total
Polluter		50.0%	4.4%	54.5%
General Public		22.1	11.8	33.9
Consumers		11.8	11.8	23.6
Industries		5.9	14.7	20.6
Federal Government		4.4	22.1	26.5
Local Communities		2.9	16.2	19.1
Local Interests		2.9	4.4	7.3
	N = 68	100.0%	85.4%	185.4%

32. Q. N56 Comments.

No matter who pays directly the public will eventually bear the cost.	28.0%
Polluter should be charged if identifiable, otherwise general taxpayer.	16.2
Prefer cost passed to public through the cost of goods rather than by taxation.	10.3
Industries should not be able to pass the cost to the public	2.9
Need a nationally uniform program.	2.9
Levy tax according to pollution load.	1.5

NOTES--CHAPTER VII

33. E.g., an individual may have quite a different concept of nature as he hikes through a wilderness area, to that exhibited by his actions as a businessman or even as a householder.

34. Webster's New 20th Century Dictionary, 2nd Edition, 1966.

35. So commonly part of very idealistic descriptions. For instance, see articles by David and Kenneth Brower in The Environmental Handbook, ed. Garrett DeBell, Ballantine, 1970.

36. Only four men gave something as abstract as a systems concept, not just containing objects but emphasizing the relationships between various forces, or components of ecologic systems. Nobody mentioned intangibles such as odors, perceptions of heat and cold, etc., although one man did talk of the absence of noise.

37. Again, the objects were largely tangible. Only 5 men gave all encompassing, world wide images. Nobody mentioned the sun, or the universal type of concept quoted by Webster's.

38. Although 19 did mention streams as a secondary part of their image.

39. All the definitions given are listed in Appendix 3, to give an idea of the range of concepts exhibited.

40. If even a limited perception of this broader environment was exhibited the individual was given the latter classification.

41. N=70, Chi Square=6.67, 2 degrees of freedom, 0.05 significance level.

42. Western locations defined as being all offices west of and including Dallas/Fort Worth.

43. A viewpoint seen both in the popular press and from some very eminent ecologists, e.g. Paul Erhlich, Barry Commoner, etc.

44. The answers to Q. N42b supports this view. The statement was made that "Man can presently change nature on a world wide scale, but cannot always predetermine the changes that will occur." 79% of the respondents "strongly agreed", or just "agreed" to that viewpoint. This was a poor question, containing two dimensions, the world wide influence, and more knowledge, which confused the response. A strong agreement however, without any apparent doubts being expressed, should indicate that both dimensions were agreed with. 59% exhibited an answer of that strength, again demonstrating fairly well the low confidence planners have in man's knowledge of the broad sweep of nature.

45, 46, 47. Omitted.

48. More knowledge is not the only prerequisite to the quantification of nature's benefits and costs. Knowledge doesn't necessarily remove value connotations, and usually exposes even more. Certain things--beauty, the value to life of contact with nature, etc., can never be equitably compared unless everybody shares the same beliefs, has a common experience, etc. Even when numbers are assigned to aesthetics as Leopold has attempted to do, this does not provide the dollar values, but only comparative statistics along a few dimensions. Those chosen as important, must be subjectively assigned. (Luna B. Leopold, "Quantitative Comparison of some Aesthetic Factors Among Rivers", Geological Survey Circular 620, Washington, D.C., 1969.

49. There has probably been an overreaction here in their enthusiasm to be heard and to make their case. The ecologists have to an extent, failed in their task, because too many have been simply destructive, rather than constructive in their criticism. They have torn projects apart without providing the necessary alternatives to fill the vacuum. The time has come to show planners how to achieve some of society's goals and still meet ecological standards.

50.

	Q.N39c Nature has a delicate balance		
	Agree	Disagree	
Q. N39a Nature is robust.			
Agree	34	16	50
Disagree	15	1	16
	49	17	66

N=66, Chi Square=2.94, 1 degree of freedom, level of signif.=0.10.

51. It is a surprise, mainly because the Judeo-Christian ethic, which is the predominant belief code in the United States, gives man "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." (Genesis, Chapter 1, verse 26, Holy Bible, King James Version.)

52. Values underlined are those in the major categories that are higher than expected.

53. N=70, Chi Square=6.61, 2 degrees freedom, level of signif.=0.05.

54. N=70, Chi Square=3.56, 2 degrees freedom, relationship not significant.

55. N=70, Chi Square=5.34, 2 degrees of freedom, level of signif.=0.10.

56. N=70, Chi Swuare=9.12, 2 degrees freedom, level of signif.=0.02.

57. N=70, Chi Square=5.18, 2 degrees of freedom, level of signif.=0.10.

58. Hirschliefer, *et al.*, *op. cit.*

59. J. Bruner and M. Farris, *op. cit.*

60. Indeed, one planner said, "You gain nothing by turning water loose and letting it go unused into the ocean."

61. F. R. Kluckhohn, *op. cit.*

62. One limited example is that flood control dams on certain rivers, while saving lives, have also prevented the annual deposition of highly fertile silt deposits in the delta areas, and have altered or destroyed traditional agricultural patterns.

63. An attempt to assess the merely self protective reaction to natural forces, was made with *Q. N42(d)*, which asked for agreement with the statement that "man can seldom do more than defend himself against natural disaster." The response received was inconclusive, 34.3% agreed, 15.7% somewhat agreed, 1.4% gave no answer, 24.3% mildly disagreed, and 24.3% disagreed (N=70). Some confusion was evident among the respondents when given this question. However, the stronger opinions (34% to 24%) tend to support the concept, with the overall viewpoint apparently evenly split.

64. There is a weak, but not significant relationship between *Q. N38*, the amount of knowledge of nature felt to be available and *Q. N42(c)*.

	Q. N42c Man has the ability to coexist with nature			
Q. N38 Knowledge of Nature	Agree	?	Disagree	
High	15	3	7	25
Low	22	2	21	45
	37	5	28	70

65. Although the two dimensions are not as different in effect as those of *Q. N42(b)* dismissed earlier. Coexistence implies that interference is small.

66. As demonstrated by the spread of pesticide residues throughout the food chains of the oceans, etc.

67. This is supported by the negative view of man's understanding of nature demonstrated in *Q. N38*. Again, since knowledge of the processes is seen to be lacking, this supports the view that control is low, since control without knowledge is difficult. Knowledge, however, is not a necessary prerequisite to disruption.

68. N=70, Chi Square=6.80, 2 degrees freedom, level of signif.=0.05.

69. Q. 10c(5)Use of large scale interbasin water transfers

	Favor	Conditionally favor	Ambivalent	Against	
Q. N42(a) Man can control hurricanes, etc.					
Agree	8	5	0	3	16
?	1	1	0	0	2
Disagree	11	20	6	10	47
	20	26	6	13	65
Q. N42(c) Man can coexist with nature.					
Agree	10	10	4	9	33
?	3	1	0	0	4
Disagree	7	15	2	4	28
	20	26	6	13	65

70. N=67, Chi Square=8.36, 2 degrees freedom, level of signif.=0.02.

71. The division of decision makers is between the planner and/or his agency and a combination of other decision makers such as Congress, states, locals, groups such as basin commissions, the public, etc.

72. N=67, Chi Square=10.02, 2 degrees freedom, level of signif.=0.01.

73. N=70, Chi Square=6.62, 2 degrees freedom, level of signif.=0.05.

74. N=69, Chi Square=7.33, 2 degrees freedom, level of signif.=0.05.

75. Carl Bode (Ed.), The Portable Thoreau, Viking Press, 1969.

76. David Brower, "A Time for Sarsparilla", in The Environmental Handbook, ed. Garrett de Bell, Ballantine, 1970.

77. Timelessness, aesthetic perfection, etc., are just other ways of saying that a process or object is beyond man's powers.

78. Gene E. Willeke, op. cit.

79. A Gallup Poll made in January 1971 disputed the planners' perceptions. Taken for the National Wildlife Federation, it found that 51 per cent

were "deeply concerned" about the effects of air pollution, water pollution, soil erosion and wildlife destruction. About one-third were "somewhat concerned" and 12 per cent were "not very concerned". Air and water pollution were ranked as the two most pressing problems, in that order. Seventy-five per cent (including sixty-three per cent of those with incomes under $5,000) indicated a willingness to pay additional taxes, if they were earmarked for conservation. Six in ten persons said they would be willing to serve on committees if asked to do so. (AWRA Newsletter, mid-1970)

80. U.S. House of Representatives, Committee on Science and Astronautics, Congressional White Paper on "A National Policy for the Environment", 90th Congress, 2nd Sess., Serial T, October 1968, p. 1.

81. U.S. Senate Report No. 91-296, "National Environmental Policy Act of 1969", (S1075), 91st Cong., 1st Sess. July, 1969.

82. Cong. White Paper, op. cit., p. 4,5.

83. Amos Rapoport and Robert E. Kantor, "Complexity and Ambiguity in Environmental Design", Journal American Institute of Planners, Vol. 33, No. 4, July 1967, p. 214.

84. Hirschliefer, et al., op. cit., pp. 4,5 and Chapter 2.

85. From the Congressional White Paper: "If America is to create a carefully designed, healthful and balanced environment, we must (1) Find equitable ways of charging for environmental abuses within the traditional freemarket economy; (2) Obtain adequate ecological guidance on the character and impact of environmental change; (2) Where corporate resource development does not preserve environmental values, then consider the extension of governmental controls in the larger public interest; (4) Coordinate the government agency activities which share with industry the dominant influence in shaping our environment; and (5) Establish judicial procedures so that the individual rights to a productive and high quality environment can be assured."

86. N=70, Chi Square=16.28, 4 degrees freedom, level of signif.=0.01.

87. N=70, Relationship not significant.

88. N=70, Chi Square=11.95, 6 degrees freedom, level of signif.=0.10.

89. N=70, Chi Square=5.99, 2 degrees freedom, level of signif.=0.05.

90. N=70, Relationship not significant.

91. N=70, Chi Square=8.15, 4 degrees freedom, level of signif.=0.10.

92. There were a number of comments to this effect. One man even felt that undergoing the questionnaire was more a learning experience for him than it was for us.

93. Environmental Policy Act of 1969, *op. cit.*

94. This is quite possible. When asked to name the laws of the last 10-20 years significantly affecting planning, 20% could give none at all (Q. G107).

95. National Environmental Policy Act of 1969, *op. cit.*

96. *Q. G107* "Has there been any legislation in the past 10-20 years which has significantly changed the quality of water resource planning?" See Chapter IV, "Planning Objectives".

97. U.S. Army Corps of Engineers, Institute for Water Resources. "Environmental Policy for the Civil Works Program of the Corps of Engineers", August, 1970.

98. It was demonstrated before that knowledge of laws is much higher among supervisors than those in the planning grades GS-11,12. See Chapter IV, "Planning Objectives".

100. N=68, Chi Square 4.93, 1 degree freedom, level of signif.=0.05.

101. N=68, Chi Square 3.72, 1 degree freedom, level of signif.=0.10.

102. N=68, Chi Square 6.52, 1 degree freedom, level of signif.=0.02.

103. N=68, Chi Square 6.01, 2 degrees freedom, level of signif.=0.05.

104. N=68, Chi Square 4.93, 2 degrees freedom, level of signif.=0.10.

105. N=68, Chi Square=4.65, 2 degrees freedom, level of signif.=0.10.

106. Along our other dimension of man versus nature, the potential ability to control geophysical phenomena (*Q. N42a*), no such relationship was found, which reinforces the special status given to this facet of nature.

107. No lack of general legislation was seen, just *effective* legislation.

108. FWQA Planners particularly complained about the fact that they have interstate waters authority but very limited powers within the states themselves.

109. Including those who gave it as a second choice, a total of nearly 20% of the sample voiced this doubt.

110. The 1899 Refuse Act prohibits discharges into navigable waterways without a permit from the Corps. It was recently given new life by Rep. Henry Reuss (Dem.-Wis.), San Francisco Chronicle, December 24, 1970, p. 1.

111. "Pollution: Puffery or Progress?", Newsweek, Dec. 28, 1970, Business and Finance Section, pp. 49-51.

CHAPTER VIII

PHILOSOPHY AND CONCLUSIONS

This study was undertaken to attempt to describe the planning philosophies of a sample of federal water resource planners. No uniquely identifiable outlook emerged and the overall image was somewhat confusing. Many planners had apparently never attempted, nor had an opportunity, to give form to their basic beliefs. Often the survey seemed to be as much a learning process for the interviewees as it was for the researchers. Nevertheless, there were some characteristic beliefs common to a majority of planners and two primary planning emphases were evident.

View of Nature

Most planners' images of nature and the environment were pragmatic, rarely going beyond physical attributes. Nature and water were valued for their contribution to man in terms of their resource potential rather than for the metaphysical benefits they may provide or the broader ecological functions served. There was uncertainty about man's understanding of, and ability to, influence nature, and except in a limited sphere his efforts were frequently held to be merely destructive. Planners were aware of current environmental problems but generally considered them manageable. The policy sought was for a non-panic, balanced approach, reflecting both a common sense outlook and the necessity to compromise because of the difficulties of having to arbitrate between conflicting demands for preservation and development.

Because nature is a subjective issue, it may be impossible and even unnecessary to expect a coherent outlook on its value to man. There is, however, a need to develop techniques to enable planners to more clearly illuminate the environmental-economic trade-offs in their plans. It is important that methods be flexible and that agency planners be aware of their limitations, so that the danger of imposing an additional value structure on, or obstacle to the planning process is avoided. Some of the confusion and feelings of inadequacy could be eliminated by exposing all planners and engineers to the basic principles of ecology. Certainly ecology is better understood and can furnish more information about man's influence on natural systems than most engineers realize.

View of the Future

The future world envisioned by planners is a conservative one. The horizons are generally less than twenty-five years, far shorter than the agencies' planning periods. However, little change in the pattern of growth is expected and optimism about the availability of resources is strong. Existing technology and institutions are seen as being adequate to meet most future problems.

This is a satisfied, non-demanding view, leading to an incremental approach to problems. Planners see their task simply as meeting the demands of an expansion of the present situation. There is little awareness that resources are now limited and no apparent sense of a need to change the current reliance on "growth for growth's sake." If more imaginative approaches are not sought, current planning may simply exacerbate today's environmental and social problems. Since distant futures must be planned for, despite the planners' distrust of long projections, there is an indicated need for wider use of forecasting methods which are sensitive to changes in major parameters and give contingency limits or forecast ranges of demand under a variety of possible decision sequences, rather than simply relying on a single value prediction.

Planning Roles

The differences between planners are most evident in the concepts of their own role, or function, which were summarized in their definitions of a planning philosophy (Appendix 3c). About four in seven saw themselves as technical consultants whose primary responsibility is to develop projects. Their focus is on the means rather than the goals. They work to satisfy specific local needs over the demands of broader national objectives. This does not imply that their work is responsive to the public, since influential local interests may have very limited concerns. These planners maintain their right to make value judgments by virtue of their position or expertise, or because of perceived incompetence of the public. They wish to involve outside interests on an informational level, but just to expedite or give legitimacy to their proposals.

A second group of planners were more aware of the full function of planning. Their interests lay in the plan's achievements and in demonstrating the consequences of alternative actions. They were more willing to accept a broader set of interests and to allow a more significant community involvement in developing plans. Their approach appeared more likely to be broadly responsive to social, physical and economic needs.

The differences between these groups is close to that between a technocratic (elitist) outlook and that of the professional technologist. Part of the explanation for the two views is undoubtedly the traditional agency orientation to the first position, as opposed to the growth in consciousness of the need for a more comprehensive planning approach. Many planners, or at least men in what are considered planning positions, are actually doing an engineering task. This is a necessary role, but it should not be confused with the goal interpreting responsibility of planning.

The need for long-range, broadly integrated plans which ensure that state and regional proposals consider national and even world-wide interests, social and environmental as well as economic goals has never been greater. The limited outlook demonstrated by many of those interviewed would be acceptable for state agencies but is no longer a prerogative of federal planners.

The federal agencies are in the logical position to carry out long-range, independent planning. Planners should be freed from the constraints of providing projects as the solution to all needs by separating their role from the design and construction activities of the agencies. Because there is potential for the development of an elite and for coercion of the public in such a situation, the individual's responsibility to maintain a service motivation and his need for a social conscience is increased.

Goals

The planners' knowledge of the laws and understanding of the goals controlling their agencies' functions was poor. Awareness of the social impact of water resource projects and the need to include social considerations in what has hitherto been seen largely as a technical task was almost non-existent. However, it was evident that knowledge of goals and exposure to planning done under a multi-objective approach was accompanied by a growing social consciousness.

Thus, before planning in the sense discussed above can be made effective and responsive the planners must be given greater exposure to the general concepts of planning and its implications for society and education in the area of agency goals, legislation and policy. Agencies should encourage more men to undertake university studies in multidisciplinary programs. In-house courses on the laws and goals governing the agency, how these laws are interpreted in policy directives and the process by which plans move from initiation to authorization and appropriation should be required for all members of a planning team. Programs to give potential supervisors an overall view of the agency should be emphasized. The effectiveness of educational efforts could be multiplied by requiring men who attend periodic planning seminars or university programs to relay new ideas to their colleagues through seminars, papers, memoranda, etc. This process would not only disseminate new concepts, but would help the individual to maintain his own interest and crystallize his thoughts. The opportunity to refresh ideas should also be available through a "sabbatical leave" plan. Even "reverse" sabbaticals could be encouraged, by which professors and doctoral students in university planning programs could be brought into the field offices of the agencies, both to give the academics some understanding of the practical requirements of plans and to enable a wider spectrum of agency personnel to be exposed to newer ideas and concepts. Such ideas are expensive and time consuming, but these costs must be borne if planning is to be improved.

Public Involvement

It was clear that the planners did not hold very high opinions of the public's competence and ability to aid their plans. Many planners demonstrated something of an elitist outlook. Public involvement was desired primarily as a means to expedite final acceptance of the planner's ideas, not to ensure the responsiveness of his plans. The public was to be coopted. (This of course may be considered as a first step toward a better public role since at one time the agencies did not even have to make this effort, but it does not go far enough and such attitudes must not be allowed to become formalized.)

A point for planners to consider is that given the subjectivity of many of their decisions, they may be no more, and perhaps less, qualified than the public to make certain choices. Society must have the right to set its own values. The public should not have to wait until planners seek their response before they participate. An informed and involved public can help ensure the accountability of government plans.

To increase the responsiveness of plans, planners must be convinced of the value of contributions by the public. Increased confrontation of the planners and the public is essential. The evidence is that planners who have been exposed to efforts to involve the community are more likely to accept public control or political arbitration of plans. Such attempts should be increased through the use of public forums, referendums on major issues and opinion surveys together with planning workshops, local government and citizen group meetings. Public education programs to give laymen an understanding of the planners' problems and the confidence and incentive to propose their own ideas must also go forward.

Attitude Variations by Age

There were sufficient differences between the views of the younger and older planners to indicate a shift in priorities away from economic goals. However, young planners were not less, and often more, distrustful of public motives and the political process than their seniors. Their knowledge and understanding of the principles and laws governing planning were more limited than older men or those in higher grades. Thus more emphasis on multi-disciplinary planning education in engineering schools is needed to supplement agency in-house training programs. Greater emphasis should be given to economics, political science, ecology and descriptions of the various models and requirements of the planning process.

Agency Differences

On the whole, few differences between agencies were found. Planners' personal philosophies do not necessarily follow their agencies' priorities.

An "Ideal" Philosophy

A logical question raised by a study such as this is whether an "ideal" planning philosophy can be developed and used as a criterion to assess the potentialities of men to be planners. A primary attribute would be flexibility and willingness to accept new values. To prevent vacillation an individual should balance flexibility with confidence in his own ability, but be willing to accept the responsibility for his decisions. He should understand the neature of planning and the part it should play within society. Planners should believe in the rights of people, or their representatives, to influence plans which will affect their lives. A multidisciplinary education, with a major in water resource engineering, economics or ecology, and strong emphasis in the social sciences and law should provide a good, but not essential, background. Further exploration into attitudes might lead to the construction of an "aptitude test" for potential planners. An initial attempt at such a series of scales is shown in Appendix 5.

Further Research

There are several other areas for further research aimed at better understanding the planning process that have grown out of this study.

A similar survey should be repeated in four or five years to see whether current changes within agencies are reflected in a change in outlook by their planners and to assist in assessing the effectiveness of training programs.

Specific studies of four issues are needed. Are planners' goal structures and understanding of agency laws and policy actually as limited as this survey seems to indicate? How can planners acceptance of public participation be enhanced, and what methods of public input would provide planners with the most assistance? How are planners' attitudes actually translated into decisions? Planners' behavior in actual decision situations needs to be examed. On this last question, a case history approach is needed, tracing the effects of various individual decisions made throughout a project's development. A more defined set of scales with respect to nature should be developed since the general abstraction of "nature" was not found to be very predictive of attitudes toward specific features of the environment or opinions about an acceptable national policy.

It would be useful to compare the attitudes of federal, state and local planners. The State role in water planning is increasing and it would be interesting to know whether local planners have attitudes similar to federal level planners.

Similar surveys of planners in fields other than water resources might also be useful in understanding planners' attitudes and possibility in relating attitude patterns to education.

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APPENDIX 1a

CE 269: Philosophy of Water Resource Planning Autumn, 1969

Significant Determinants of a Water Planner's Behavior

The planner's attitudes towards:

A. Individuals or groups in society
   1. The public, society itself
   2. The government (type - republicanism or parliamentary/ power and ability to rule?)
   3. The planner's own agency
   4. Other agencies
   5. Independent groups (preservationist societies, developers, farmers, etc.)
   6. Other disciplines
   7. The decision makers
   8. His supervisors
   9. His peers (professional groups, etc.)
   10. His subordinates

B. Societal characteristics
   1. The political process (resource allocation, water planning decision making)
   2. Agency structure
   3. The planning process (within agency)
   4. Federalism

C. Policies (planning procedures, criteria)
   1. National goals
   2. Regional or local goals (economic development, interbasin transfers, etc.)
   3. Economics (B/C etc., finances?)
   4. Common good (well being of the people)
   5. Water law

D. Issues
   1. Nature (the environment)
   2. Water (unique good?)
   3. Pollution
   4. Social problems
   5. Aesthetics

E. Personal orientations
   1. The future
   2. Integrity (convictions)
   3. Personal achievement (self)
   4. Responsibility (personal)
   5. Urgency
   6. Conflict
   7. Innovation

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8. Change
9. Relevant environment
10. Advocacy
11. Personal role
12. Personal efficacy

F. Constraints
   1. Money
   2. Technology
   3. Regulations (by the book planning)
   4. Communication
   5. Knowledge (information)

APPENDIX 1b

CE 269: Philosophy of Water Resources Planning Winter, 1970

Tentative Outline of Aspects of Planning

I. Technical Aspects
  A. Methods
    1. Systems Approach
      a. Mathematical
      b. Non-mathematical
    2. When should plan be reviewed?
    3. Frequency of plan review
    4. Evaluation of plan after project and/or plan constructed
  B. Criteria and Data
    1. Sensitivity of data
      a. Technical data
      b. Non-technical data
    2. Criteria for measurement of costs, benefits, needs, etc.
  C. System Requirements
    1. Future form of society
    2. Effects of changing technology
  D. Planning constraints
    1. Data
    2. Time
    3. People
    4. Money
    5. Technical limitations

II. Socio-Political Aspects
  A. Decisions
    1. What is a decision?
    2. Is there a decision maker?
    3. Who are decision makers?
    4. Who should be decision makers?
    5. Hierarchies of decision. (What kind of decisions?)
    6. How to decide what is a technical question.
  B. Who accepts plan?
  C. Disposition of current authority
  D. Conflict resolution
  E. Pluralism vs. Elitism
  F. Type of Institution
  G. Policy - constraint or enabling?
  H. Financial feasibility (institutional factors)

III. Philosophic Aspects
  A. Who should plan?
    1. Person
    2. Institution

B. Who does planner represent?
  1. National objectives
  2. Regional objectives
  3. Preservation of environment
  4. Well-being
  5. Selfish interests
C. Needs, Values, Beliefs
  1. National
  2. Planner
  3. Roles and segments of society
D. Objectives of Planning
  1. Investment
  2. Service
E. Process of setting objectives, philosophic approach
  1. Long term
  2. Short term
F. Criteria for defining need
G. Boundaries of effect
H. Approach and attitude toward uncertainty
I. Negative aspects

APPENDIX 2

Demographic Profile

Agency	Number	Percentage
Corps of Engineers	43	61.4
Bureau of Reclamation	15	21.4
Federal Water Quality Admin.	12	17.1
	70	100.0%

Grade	Number	Percentage
GS-11	16	22.9
12	29	41.4
13	16	22.9
14	7	10.0
15	2	2.9
	70	100.0%

Age	Number	Percentage
20-24 years	0	0
25-29 "	14	20.0
30-34 "	8	11.4
35-39 "	14	20.0
40-44 "	12	17.1
45-49 "	6	8.6
50-54 "	7	10.0
55-59 "	6	8.6
60 and above	3	4.3
	70	100.0%

Time in Grade	Number	Percentage
Less than 1 year	6	8.6
1.0 - 2.9 years	26	37.1
3.0 – 4.9 "	18	25.7
5.0 - 6.9 "	10	14.3
7.0 - 8.9 "	4	5.7
9.0 - 10.9 "	2	2.9
11.0 - 14.9 "	3	4.3
15.0 - 19.9 "	0	0
20.0 and above	1	1.4
	70	100.0%

Agency and Planning Service

Years	Agency Service		Planning Service	
	No.	Percentage	No.	Percentage
Less than 1	0	0	2	2.9
1.0 - 2.9	6	8.6	4	5.7
3.0 - 4.9	10	14.3	11	15.7
5.0 - 6.9	10	14.3	11	15.7
7.0 - 9.9	8	11.4	10	14.3
10.0 - 14.9	17	24.3	16	22.9
15.0 - 19.9	3	4.3	7	10.0
20.0 - 24.9	6	8.6	3	4.3
25.0 and above	10	14.3	5	8.6
	70	100.0%	70	100.0%

Office Location and Sample

P - Planners - GS-11 & 12
S - Supervisors - GS-13,14,15

Corps	P	S
San Francisco	3	2
Dallas-Fort Worth	3	2
New Orleans	3	1
Charleston	3	1
Baltimore	3	1
Boston	3	1
Detroit	3	1
Omaha	3	2
Portland	2	2
Los Angeles	3	1
	29	14

BuRec	P	S
Billings	2	2
Denver	2	2
Boulder City	2	1
Sacramento	3	1
	9	6

FWQA	P	S
Alameda	1	1
Dallas	1	2
Boston	1	1
Chicago	0	1
Portland	2	0
Denver	2	0
	7	5

Level of Office

Corps	
Division	4
Districts	39
	43

BuRec	
Region	15
	15

FWQA	
Region	6
Basin	6
	12

Education

Bachelor degree	Number	Percentage
Yes	66	94.3
Yes, double degree	1	1.4
No	3	4.3
	70	100.0%

Major	Number
Civil Engineering	53
Electrical Engineering	2
Economics	4
Mechanical Engineering	2
Physical Sciences	2
Geography	1
Soil Conservation	1
Animal Husbandry	1
Forestry	1
	67

Masters degree	Number	Percentage
Yes	16	22.9
No	54	77.1
	70	100.0%

Major	Number
Civil Engineering	11
Geography	1
Economics	2
Business Administration	1
Agricultural Economics	1
	16

Ph.D. Degree		
Yes	1*	1.4%
No	69	98.6
	70	100.0%

* Subject: Sanitary Engineering

Other Education - University	Number	Percentage
Night school or extension courses	22	31.4
Graduate school courses (no degree)	19	27.1
Graduate courses toward an M.S.	5	7.1
Business college	1	1.4
Junior college - pre-engineering	1	1.4
College, without graduation	1	1.4
Cornell - environmental systems engineering	1	1.4
In-house - agency training		
Technical/report writing courses	25	35.7
Management courses	9	12.9
Current awareness program	1	1.4
Corps - Advanced engineering program	2	2.9
- BERH - planning associates	4	5.7

Background

Where born and raised?	Number
Outside the United States	3
Washington, Oregon (Northwest)	3
California (Calif.)	4
Nevada, Utah, Arizona, New Mexico, Texas (Southwest)	9
Idaho, Wyoming, Colorado, Montana (Intermountain)	7
North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Kansas, Missouri, Oklahoma (Midwest)	14
Wisconsin, Michigan, Illinois, Indiana, Ohio (Mideast)	8
Arkansas, Louisiana, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina, Tennessee, Kentucky, Virginia, West Virginia (South)	10
Pennsylvania, Maryland, New York, Connecticut, Rhode Island, New Jersey (Northeast)	8
Massachusetts, Vermont, New Hampshire, Maine (New England)	4

Urban	38	54.3%
Rural	30	42.9
Both	2	2.9

Father's Occupation	
Professional - medical, engineering, law, etc.	7
Executive white collar	5
Wage earner - white collar	6
Farmer	11
Skilled trade	26
Unskilled, blue collar	7
Merchant	5
Military	2
No answer	1
	70

Membership in Groups/Organizations

Number of professional groups or societies joined.

0 - 27.1%; 1 - 37.1%; 2 - 20.0%; 3 - 10.0%; 4 - 4.3%; 5 - 1.4%.

Number of citizen organizations, community groups, joined.

0 - 88.6%; 1 - 8.6%; 2 - 1.4%; 3 - 1.4%.

Number of water sports, outdoor recreation pursuits followed.

0 - 14.3%; 1 - 12.9%; 2 - 24.3%; 3 - 18.6%; 4 - 15.7%; 5 - 8.6%; 6 - 5.7%.

Average time for all interviews - 2.95 hours.

Agency-Age

	Corps	BuRec	FWQA
Under 30 years	10	1	3
30 - 40 "	13	5	4
40 - 50 "	11	4	3
50 & over "	9	5	2
	43	15	12

Agency-Planning Experience

	Corps	BuRec	FWQA
Under 5 years	9	0	7
5 - 10 "	10	5	3
10 - 20 "	15	3	2
20 & over "	9	7	0
	43	15	12

APPENDIX 3(a)

Q. N46 Definitions of the Environment

(Order randomized within categories)

Physical-tangible features

1. Ecology of a specific locale.
2. Earth surface, from mantle to the stratosphere.
3. Physical, chemical and biological factors which impinge on an organism.
4. Everything about us, natural and man-made.
5. Weather, land, the place in which man lives--urban or rural.
6. Air, water and plant life.
7. Everything that physically affects the way a man lives.
8. Surroundings.
9. Surroundings, everything with which an individual is associated.
10. Never ending conflict between man and nature, fighting for equilibrium.
11. Nature, ecology, life.
12. Places, conditions that exist, things that affect plants, animals, man.
13. All surroundings, the relationship between all things.
14. Surroundings, the same as nature.
15. Everything around an individual, the physical setting in which man lives.
16. Nature in relation to inhabitants of the earth, people,animals, etc.
17. Spaceship earth, land, water, air, all surroundings.
18. Place where people live, cities, vacation areas.
19. Everything, people, buildings, air.
20. All natural phenomena, and how they interact with man.
21. Everything around man, roads, rivers, etc.
22. Framework that man lives within, air, soil, water.
23. Everything interacting, man interacts with environment.
24. Interrelationship of man with air, water, land, etc., in which he lives.
25. Natural setting the earth is in, open areas.
26. Surroundings in which we live.
27. Setting in which living things are dependent on habitat.
28. What man and animals have to live with and within.
29. All physical surroundings.
30. All surroundings, weather, climate, shelter.
31. Air, food, natural resources.
32. Air, food and water that man takes and uses.
33. Things that man lives with, that are around man.
34. Surroundings humans and animals live in.
35. Animal, vegetable, mineral content of the universe, man and everything around man.
36. Place in which a man is, the air he breathes, everything.
37. Everything that can be affected by man and nature.

Physical-tangible plus intangible features

38. Everything associated with how man lives, includes all sensory effects, noise, odors, etc.
39. Physical environment, air, water, scenic and audio-visual.
40. Man's surroundings, nature, development and its effects.

Physical-tangible, intangible--plus quality aspects

41. Desirable living, urban or rural, depending on personal taste.
42. Where man lives, how he lives, and what he does with it.
43. Our surroundings, unspoiled, clean and safe.
44. Nature and external effects on man, aesthetic, clean water, clean air, etc.

Physical plus man's interaction with other men

45. Natural surroundings, including man, within which a man lives and contacts.
46. Everything around man, land, water, people, public improvements.
47. Air, land, water systems, powers, plus people.
48. Space that man lives in, and contacts--air, water, people, animals, society
49. Land, water, sunlight, fish and wildlife, interaction affecting emotional and attitudinal behavior of an organism.

Physical plus social world

50. Everything that exists, everything that a man does, all encompassing.
51. How man lives, the quality of life.

52. Surroundings (physical terrain, temperature, etc.) plus the social structure.
53. Total surroundings and life, work, home, human relationships.
54. What man is surrounded with (clean air and water), plus what is available to man, jobs, entertainment, climate.
55. Sum of all physical and social factors that exist.

Physical plus social plus economic world

56. Everything that affects the way of life, land, water, people, transportation.
57. Where and how man lives, actions to preserve and conserve the environment and economy.
58. Complete spectrum, all beneficial and adverse effects on man's ability to survive and prosper.

Physical, social, economic and spiritual world--total life experience

59. Total surroundings, state of mind, the whole being experience.
60. Man's total life situation.
61. Resources, people, social, religious, everything with which man comes in contact.
62. Everything that surrounds man, city or rural, plus social, institutional and political spheres.

63. Surroundings, everything that affects man, physical and metaphysical and religious.
64. Natural, social, human environment, anything that affects the human body and spirit.
65. Each man's surroundings, what man lives, sees, does, physically and psychologically.
66. Relationship with man's surroundings, his effect on them, their effect on him, physical, social, and mental.
67. Everything external to man's inner feeling of being, physical plus attitudes, etc.
68. Sum of material and spiritual surroundings, everything.
69. Air and land and house in which man lives, plus anything that affects his enjoyment of it, or his mental well being.
70. Total surroundings, all man comes in contact with, physical plus emotional and moral influences.

APPENDIX 3(b)

Q. G93 Definitions of a Plan

Means to an end--guide to action--directive

1. Outline of a direction, or picture of a goal to be reached.
2. A determination of objectives and how to achieve them.
3. A statement of goals and objectives, including policies, and the means to reach them.
4. A proposed course of action and the justification for it, economic and non-economic.
5. An orderly program to get from one point to another. Priorities and goals for the plan to attain are established before the planning is begun.
6. A course of action (or inaction) to use existing resources to satisfy the needs of the public.
7. A course of action to best solve a set of problems.
8. Most economic method or direction of reaching a goal.
9. Shows a way to accomplish an objective--hopefully a desirable objective.
10. A direction for action--a document or report which gives implementers a direction on where to go.
11. A flexible guideline to go by--flexible to change over time.
12. Background and recommendation for a future action.
13. Flexible guide for action.
14. A route to follow (with defined limits).
15. A selected solution to solve a problem.
16. A guide to decision makers to help them to allocate resources.
17. A way to go about doing something, organization of a planner's activities, providing a solution to a problem.
18. Cheapest, or nearly cheapest method to meet needs of the local interests to be served.
19. A guide to resource use.
20. A program for action, for doing something.
21. A guide for action to be taken.
22. A logical presentation of a method of solving a problem. Must solve all problems, or answer all questions as well as is possible, or the plan is incomplete. May have to compromise/reduce effectiveness/on prime objective to meet several others.
23. Proposal or method of solving a problem.
24. Means of reaching a given objective.
25. A proposed solution for a purpose to be met.
26. Presentation of ideas in the solution of a problem, narrative and drawings.
27. A series of steps to accomplish a goal.
28. System devised to meet a desired or agreed upon goal.

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Evaluation--non-directive analysis

29. Comprehensive evaluation and treatment of all types and purposes relating to needs and resources and of ways to meet those needs.
30. Sitting down and thinking things through from start to finish.
31. The way of going about a study, when it is to be done, gives who is going to do the study and the cost of the report.
32. A starting point which maps out alternatives and uses, from which, depending on the needs, a decision on a direction to go can be made.
33. Information and education tool to be used by Congress/states/other agencies. A collection of information to be used as a basis for a decision, a series of options, a list of alternatives. A map of areas of decision consequences.
34. Varies--from the vague idea for a project to the detailed analysis of a problem.
35. Assessing possibilities as they exist, corrects problems seen in the immediate future, but flexible enough to change as conditions change.
36. Overall view, touches all spectrums looked at, a clear, concise explanation of findings, devoid of highly technical terminology, readable by the public.

Directive plus evaluative features

37. More than just words. A plan identifies needs and problems, it sets goals (with several time frames) and all methods available to achieve the goals. Planning defines goals and criteria.
38. A master plan for the basin. A good start for whoever manages the water in the basin. Flexible enough to handle changes in needs and objectives. A starting point for development. A source of alternatives for future needs.
39. Identifies objectives, lays out a course of action to achieve these objectives, and evaluates all alternatives. A method to achieve objectives.
40. The alternatives studied and the practical solution to a problem.
41. Not necessarily a project. A system by which agency/planner solves the problems faced. (Includes structural-non-structural/incremental solutions, etc.)
42. Presents the problems, possible solutions, alternative plans, and makes a choice or recommends a plan.
43. Puts down a problem definition, alternative solutions, their consequences (advantages and disadvantages) and makes a recommendation. An accumulation of information.
44. Documents a statement of a need, alternatives to meet that need, it recommends the most feasible, desirable alternative, and then presents this to a political body for consideration.
45. What the basic goals of the area are, gives a determination of public wants, and the resources available, develops ways to meet the needs. It is not static, but changes with time.
46. Defines problems, offers alternative solutions, recommends a preferred solution, gives all methods of financing and who should administer the solution. More than just what should be done, it specifies how this should be done.

47. A means of accomplishing a desired end. Shows the alternatives leading to the one chosen.
48. Result of an effort to investigate and analyze a situation. Presents alternatives and recommends a solution if economically justified. Is multipurpose in form.

Physical solution--blueprint

49. The consummation of research into a problem and what can be done about them and getting this down into a structural or non-structural solution or scheme to solve the problem.
50. A technical solution to some problem, including economics and means of implementation.
51. A graphic display of what this agency considers to be the most feasible-economic way to meet future needs in the area.
52. A proposed project--a blueprint of the way a project is set up.
53. Something a planner thinks will be a workable item.
54. A project to meet the needs of people. The plan meets the objectives begun with.
55. Engineering features to be constructed and the results to be obtained by development.
56. Combination of developments to solve a problem.
57. Presents what the agency proposes to build.
58. The physical satisfaction of local interests and desires.
59. Design of something to build or construct.
60. Defines what will be done to carry out a given function or operation, fills in all engineering details--irrigation, flood control, etc.
61. A written diagram of what agency is trying to sell or do.
62. Begin with nothing, project future, put together, get answers leading to a project.
63. How man's devices can be made to meet the needs of the area involved.
64. A plan of structural improvement.
65. A project designed to meet the needs of an area with as many added benefits as are justified.
66. Providing water to meet a demand.

Physical solution plus evaluation

67. Physical design of a means of meeting an objective, with economic analysis, estimates of costs and analysis of effects.
68. Physical changes that will be made. An appraisal and financial analysis of the proposal.
69. A proposal which includes structural and non-structural elements that will solve some, if not all, water resource problems in the area or river basin. It should include all alternatives with and without the project.
70. No definition given.

APPENDIX 3(c)

Q. P145 "How would you describe your personal planning philosophy?"

Project-need oriented--Directive

1. To come up with the best solution to fulfill water needs.
2. If there is a need, try to find the most practical, economical and direct way to meet it, with consideration of environmental factors.
3. Do as much good for as many people as possible, with the least detriment, minimize bad effects.
4. Would like to see the betterment of the environment.
5. Consider the total well being, do not plan projects for project's sake, emphasize environmental considerations.
6. Do the most that can be done the cheapest way. Furnish the basic facility, leave out the non-essentials, leave it rustic or primitive, not a lot of new-style features.
7. Matching supplies to needs. Start with needs, determine best and most economical way to meet these needs.
8. Develop a plan that solves problems, meets needs, yet is socially acceptable.
9. To develop plans for improvement that will satisfy primary needs of the problems at hand.
10. Define problems (most important step), and then consider alternative solutions.
11. Like to see a project, built to meet present and future needs, that will cause future good and will help the regional economy.
12. Do the job well and efficiently. Make sure locals'wishes are considered. The nation as a whole must be considered above the desire to satisfy local needs.
13. Feel that the type of planning engaged in can contribute to making the area a better place to live. Want to help the people in the area.
14. Do the best possible with the resources, people, that have to work with.
15. Basic goal is to develop plans for projects which are desired and requested by local interests, and are engineeringly and economically feasible. They must fit into much broader, overall plans. Plans are needed that do not harm overall plans, but become part of them.
16. Multipurpose projects. Try to get all problems on the table, identify the critical problems, "will the project fly?", seek solutions to the problems, and then pursue normal investigation for water supply, irrigation, etc. Problems make up 90% of work effort. Thus need to find solutions early, try to anticipate problems, discover where can compromise, etc.
17. Determine what the requirements, or needs, are. Consider all factors, mainly hydrologic (but also social, environmental, economic redistribution, etc.). Find the best way to meet these needs within the available resources.
18. Have training and inclination for this type of work. Try to uncover means and ways of satisfying needs and goals of the area lived in. Go to whatever means available to illuminate true facts and develop solutions to needs. Ensure engineering, economic and social acceptability.

Preceding page blank

19. If a problem exists, a water need exists, we must work toward a solution, must involve the local interests, eventually present a recommendation along with alternatives.
20. Enhance the various aspects of water resource development. Multipurpose use of water.
21. Take constraints that are imposed, plan the best project that can be done within these constraints.
22. Look for information and data, evaluate it, determine what is needed, where research is required, surveillance, etc. Define the problem, solicit opinion and advice from other planners, agencies and private groups. Develop alternative plans, the cost of each and evaluate with respect to benefit-cost and intangibles. Recommend a plan and a means to implement it.
23. Maximize resource potential of the area with human values (economic and others) first, and environmental factors a close second.

Project-need oriented--non-directive

24. Develop plans to meet the needs and desires of the public, but leave options open as much as possible, for as long as possible for the future.
25. Somebody asks for a service, we provide it.
26. Get most for dollars spent. Follow the directives given, don't fight agency policy. Agency and own policy often different, causes mental anguish, but live with it. Try to see that everything is considered.
27. Try to satisfy the needs (needs are not wants) of the people.
28. Within the bounds of legal requirements, give affected intersts what they desire, and yet support agency goals.
29. Give the general public what they want within the bounds and limits of agency and Congressional regulations and procedures. If locals are strong, they should be considered.
30. Try to do as much as possible to meet the water resource needs of the people in the district as can be done under the framework of the laws within which the agency works.
31. Meet the needs of the people involved.
32. Needs oriented.
33. Involve the locals much more. Reduce expenditures of money now to generate distant benefits. Use 20-25 year economic life. Broaden alternative methods used to take care of problems. Get expression through hearings of what the public wants.
34. Conservative. Try to satisfy needs with minimum effect. Local people must make the ultimate decision on "go/no-go". Give them adequate alternatives.
35. Unfortunately, am more a historian than a planner. All the work that we have done is still in plans, none have been built. Will not live to see many projects. Am not preparing plans for immediate construction, more for the library shelf. So I prepare them so that a successor can adequately review the work, put in necessary details to ensure good future understanding of what has been done.
36. Go by directives, work strictly to directives.
37. Corps conditions ideal. Fulfilling a needed role in the plan.
38. Optimistic about the type of project worked on. They are needed, worthwhile.

Planning-analysis oriented--non-directive

39. Give planners a free hand to do their planning based on their ability and knowledge of goals. Let them reach their own decisions and conclusions. Let them make their own mistakes. Let them coordinate and work with others.

40. Had better do more and better planning than was done in the past, to prevent the mistakes of the past and to profit by those mistakes.

41. A practical approach which brings in new concepts in a non-panic, studied manner, as techniques develop to include them in planning.

42. Play the "devil's advocate" and enjoy it. Foresee aspects of planning overlooked by other agencies.

43. Even though I am a pessimist, have to assume that there is a future. Planning for the future is necessary (analogous to life insurance), need insurance, maybe too expensive, but better off with it than without planning.

44. Do not have a set philosophy. Always changing, flexible, receptive to ideas. Must be flexible to learn anything. These are good attributes. Not working with people that personally would consider as planners.

45. Go along with agency philosophy. Meet near-future needs and plan for distant future needs. Have not given deep thought to a philosophy. Will probably have to think more about it in the future.

46. Approach planning from an objective standpoint. Do not just produce a program for the agency. Do the best that meets all needs and all objectives, not just economic efficiency.

47. Try to be objective, neutral. Gather all data that can in the time available, analyze as carefully as can and come to dispassionate decision. If changed at higher levels that is nothing to do with self, not own problem.

48. Must plan to the extent that can determine future needs and growth. For orderly growth, need planning to the extent possible.

49. Start with the big picture. Try to lay out an open plan, get other coworkers to help fill in the parts, then fill in details with inputs from the public.

50. Should be more liberal, more alternative ways to report a project, should have more variety of tools, priorities, not so cut and dried (i.e. commercian navigation--use B/C only; recreational navigation--use intangibles equally with B/C).

51. The planner is responsible to provide information which will assist decision makers to make decisions for the best interests of the people.

52. Should consider in better fashion, future needs as related to what these needs are anticipated to be, along with present needs. A better handle on intangibles (environment, etc.) to translate them to hard decisions is needed.

53. Work against shutting off the openness of a plan too early, remain open minded during the data gathering stage.

54. (Don't have one, I am not really a planner. Somebody else does the planning.) The agency function is to show the impacts of projects. Use an analytical approach, show monetary and use effects. Tell other agencies, people, what to consider. See role as that of an analyst, an illuminator of consequences.

55. (At present, am pushing against the tide. Close to retirement, hard skinned and tired.) The need for water resources as has been known in the past is fast approaching its limit. There is a need for a reevaluation of positions. Environmental, regional, local, social and welfare values are becoming increasingly important. The national emphasis must decrease. There must be a shift to a regional planning emphasis. "In a time of transition, for a time everything must come to a halt, before a real change to a new planning form takes place."
56. Approach a project with an open mind. Try to see and account for everything. Allow values to compete through discussions with others. (i.e., get outside influences)
57. Emphasize the word "wise".
58. Flexibility, open to new methods, procedures, new goals. Like to think that I am creative.

Planning-analysis oriented--directive

59. Planning must be done. In this region, planning is the most important branch of the agency. It serves all others. It feeds the first steps, project initiation facts, into the organizational grinder. It must keep feeding in projects in their correct timing. It must initiate change. It is a very rewarding function. Branch conceives projects,works it through authorization, construction and operation. The benefits of the work are seen. It helps to do something for people.
60. Look to resources. Set down and establish goals and priorities. See what is needed to get there. Equate needs with resources. Then spend what is needed and be happy.
61. There is a lot that needs to be done. It is the agency's business to ensure that water resources are usefully exploited, not wasted.
62. Make advancements. Better self and the people that am involved with. Improve planning.
63. Seek public welfare, the common good. Things are going to be done, money will be spent. Hope to shape expenditures so that they are useful, so that will be better off with planning than without it. The engineer should do with one dollar what other people use two dollars to achieve.
64. Everything is interrelated. Way of life is complex, urban interdependencies create a need for planning, for evaluation of alternatives to develop the best approach for broad objectives.
65. Prejudiced in favor of very long range planning. Cooperate with nature rather than fight it. Favor careful and increasing consideration of radical planning approaches (such as limiting metropolitan growth by fiat, or making a shift of water uses compulsory in the West). Must get to the root causes of problems.
66. Try to think in terms of the entire picture, all resources, not just water resources. Look at the social and economic impacts. Then select specific areas or cases for planning and restrict self to water resources.
67. Determine a goal, go for it in the simplest, quickest, most direct and objective way.

68. Optimistic, planning is an optimistic endeavor. Objectives are difficult to meet but work is a challenge to meet these objectives. Keep a positive attitude. Accept the following principles of planning. Look at all alternatives possible, get all inputs possible, develop a well defined objective or set of objectives for planning to be directed towards and always keep striving to meet these goals.

69. In water resources, there is a planning job to be done, needs will increase, thus the need for careful planning will increase. The future major problem will be to develop water use and control plans that will take into account all planning aspects, including environmental and social needs.

70. Not asked.

APPENDIX 4

INTERVIEW NUMBER

INTERVIEW SCHEDULE

PHILOSOPHY OF PLANNING
STANFORD UNIVERSITY

Richard McDonald

Ray Wilson

Questions preceded by a letter are those used in this thesis. The letters used correspond to the major areas of analysis; e.g., N - Nature, P - Personal Role, S - Socio-Political, G - Goals of Planning, T - Time. The remaining questions are being analysed by Richard McDonald.

Place of Interview: Agency ____________________

Location ____________________

Time started and completed __________ __________

Date____________________

PERSONAL FUNCTIONS

1. Would you briefly describe the 3 most important tasks that are assigned to you?

2. Do you have any task which you would like to reduce?

   PROBE: WHY?

3. Which tasks would you devote more time to if you had the extra time?

   PROBE: WHY?

4. What type of planning, long range, framework studies or project planning have you spent most of your time doing in the last year?

5. (a) Do most of the planners in your office do the same kind of work, or does each man specialize in one phase of planning?

Generalists______________ Specialists ______________

6. How much of your planning can be accomplished before consultation with technical specialists is required?

7. Do *you (*your planners) communicate directly with the technical specialists in your office during day-to-day activities?

Yes________ No__________

8. How much of your time is spent coordinating the activities of your technical specialists?

PROBE: Do you consider this time well spent?

9. Are most of your inter-office communications verbal or written?

10. Do *your supervisors usually accompany you *(you usually accompany your planners) to meetings with other branches in this district [division] [regional] office?

Yes___________ No___________

11. How much of your (personal) time is spent in communicating either verbally or by letter with:

		% or hrs/wk
a.	local Congressmen	___
b.	State or local officials	___
c.	special interest groups & Private citizens	___
d.	other Federal agencies	___

If zero

If not zero

How much in hours/wk.? too little, not too much, etc. Could you be more specific?

Do you think that this is too much or not enough contact?

	Too much	Not enough	About right
a.	______	________	________
b.	______	________	________
c.	______	________	________
d.	______	________	________

Do you feel that you would benefit from this kind of contact?

	Yes	No	No Opinion
a.	___	___	________
b.	___	___	________
c.	___	___	________
c.	___	___	________

Comments

a.

b.

c.

d.

12. Do you actively participate at public hearings? Yes ___ No ___

13. How does your direct supervisor allocate his time between supervision and planning?

Supervision: __________% Planning _____________%

14a. How much time on the job do you think it takes to become an experienced planner?

14b. Does your agency conduct periodic training programs in planning?

Regular _____ Occasional _____ Never _____

14c. Do you think your agency does an adequate job of keeping you up to date on new developments in project planning?

15. a. Does your agency have regular programs for training supervisors and managers?

b. Are these programs adequate? Yes ___ No ___ Don't know ___

PERSONAL ROLE AND GOALS

G 16. What is the highest position in the organization that you think you will ultimately achieve? What GS level?__________

G 17. What factors could keep you from reaching this goal?

PROBE: If he gives personal, ask for institutional and fice-versa.

Personal Institutional

18. What are the three most important attributes leading to promotions within your agency?

19. Do you consider the turnover rate among your office's planners fast or slow?

20. Are the ages of the planners in your office uniformly distributed from the early 20's to just under retirement, or are they bunched at several levels?

Uniform _______ Bunched ___________

Old ___________

Middle ___________

Young ___________

21. How do you feel about your chances for promotion in the near future?

G 22. As a water resource planner, you must have some personal reasons for choosing this profession. What do you feel are your primary reasons for this choice?

G 23. a. Have you been satisfied with your choice of occupation?

Yes_______ No_______ Why?

b. What other profession would you consider given the choice again?

P 24. A water planner can serve a number of purposes in the course of his work. Card No. 1 has a list of possible roles that a planner could assume. Choose the three that you feel are most important.

a. He should serve in a technical capacity only.

b. He should actively promote the project he is working on.

c. He should coordinate all agencies and interest groups involved in any project.

d. He should educate the public about the possible consequences of water resources planning.

e. He should have the decision-making power to determine the direction and type of development needed.

f. He should initiate change wherever he sees progress slowing down.

g. He should act to serve the public.

h. Other.

P 25. Which of all these descriptions most nearly fits your present job?

26. What are the personal characteristics and qualifications of your favorite advisor?

WHAT? PROB What is his position?

P 27. Would you comment on your level of emotional involvement in the success or failure of the plans that you work on?

28. How far do you believe a planner can go in promoting his own particular ideas and answers to problems? That is, what is the highest level of authority with which *(your planners could freely discuss their ideas?) you would freely discuss your ideas?

fellow planners/ immediate superiors/ highest level in your district [division][region]

higher levels of the agency/ outside the agency - state officials, U. S. Congress, general public

PROBE: What if *you and your supervisor *(the planner and his supervisor) disagree?

P 29. Do you feel that the ideas and opinions of the field planner get much expression in the policy of your agency?

Yes ______ No_______ No opinion _______

If yes. How do these opinions reach the policy level?

PROBE:

If no: Why do you think this is so?

S 30. Do you think that the field planner should be in a position to influence policy?

Yes _____ No _____ No opinion _____

Why?

31. Card No. 2 has a list of non-engineering courses.

a. Rank them in order of potential value to a water resource planner.

b. Which of these courses have you taken?

	Rank	Formal	Informal
a. Report writing & public speaking	___	___	___
b. Psychology	___	___	___
c. Economics	___	___	___
d. Sociology	___	___	___
e. Political science	___	___	___
f. Ecology	___	___	___
f. Water law	___	___	___

32. Do you think it is necessary for a water resource planner to have an engineering background?

Yes_____ No_____

33. How difficult do you think it would be to train a college graduate without engineering training to do water resource planning?

34. What advantages and disadvantages would come from a planning team made up of economists, engineers, social scientists, and natural scientists?

Advantages Disadvantages

35. Who should lead such a team?

36. Why?

NATURE

N 37. One of the popular issues of today is a concern for nature. When you hear the word "nature", what image comes to mind?

PROBE: With or without man?

N 38. How would you describe our state of knowledge about the long-range consequences of man's changes on nature?

N 39. Would you agree or disagree with the following statements about nature?

a. In most cases, nature is robust and self-healing?

A a ? d D

b. Unspoiled environment or untouched nature presently is abundant in the U.S.

A a ? d D

c. The "balance of nature" is a delicate one. A a ? d D

d. Man is a part of nature. A a ? d D

e. Nature is essentially a hostile force. A a ? d D

f. Man has the right of control over all other living species.

A a ? d D

N 40. What do you believe should be the national policy with respect to nature?

N 41. What is the actual policy being followed now?

N 42. Regarding man's ability to control nature, would you agree or disagree with the following statements?

a. Man has the potential ability to control world-wide natural phenomena such as earthquakes or hurricanes.

A a ? d D

b. Man can presently change nature on a world-wide scale but cannot always predetermine the changes that will occur.

A a ? d D

c. Man has learned to change and control nature enough so that he can coexist with it with low damage or risk to either.

A a ? d D

d. Man can seldom do more than defend himself against natural disaster.

A a ? d D

N 43. Give a few examples of what you feel are man's major positive contributions to nature.

N 44. Give a few examples of what you feel are man's major negative effects on nature.

N 45. Some ecologists claim that the problems of environment are so urgent that solutions must be found within the next decade if we are to survive. How nearly to you agree with this viewpoint?
Yes/No

Comment?

N 46. Would you tell us how you would define the environment?

N 47. In your opinion, what is worth more, natural or man-made beauty?

Natural _______ Man-made _______ Ambivalent _____

PROBE: In what way?

N 48. What, in your opinion, is gained and lost when a river is preserved as a "wild river"?

Gained	Lost
1.	1.
2.	2.
3.	3.

N 48b. In your opinion, do the gains outweigh the losses, or vice-versa?

N 49. Do you think the value of a wild river is affected by a few dams in the headwaters?

PROBE: Does the value go up or down?

N 50 a. Do you believe that most of the people in this country are concerned about preserving nature?

Yes ______ No_______

Why? Why not?

b. Would you say that the general public is willing to make some sacrifices to save our natural resources?

Comment:

N51. What are the major forms of water pollution in your region?

PROBE: Which is the most important?

N52. Would you say that at present the problem of water pollution is very serious, still within reasonable bounds, or not serious?

N53. Will the problem of water pollution become more or less serious in the future?

PROBE: Why?

N54a. Does your agency have any responsibility in regard to pollution control [FWPCA: anything but pollution control]?

Yes _____ No _____ Don't know _____

PROBE: What is this responsibility?

PROBE: Is your agency carrying out this responsibility?

PROBE: Does your agency want this responsibility?

N54b. In controlling pollution, what would you say that your agency's major constraint is?

PROBE: a lack of technology

a lack of effective legislation

N55. Can pollution control be justified using benefit-cost analysis?

Yes ______ No ______ Don't know ________

N56. Who should pay for pollution control:

AGENCY FUNCTIONS

57. Card No. 3 lists a number of possible water development needs in your district. Choose the three water needs you consider most important at the present time. Choose, also, the least important three now.

		Now	Future
a.	Irrigation	____	____
b.	Water supply - municipal	____	____
c.	Water supply - industrial	____	____
d.	Provision of recreation facilities	____	____
e.	Improvement and maintenance of water quality	____	____
f.	Navigation	____	____
g.	Hydropower	____	____
h.	Fish and wild life	____	____
i.	Flood control	____	____
j.	Coastal improvements	____	____

58. If you foresee any change in priority over the next 50 years, which will become relatively more important?

59. Do you usually find it desirable to include as many of these uses as possible in any proposed plan of development? (omit FWPCA)

Why?

DECISION-MAKING (PUBLIC)

S 60. What public groups or interests do you take into account in your planning?

PROBE: Which one is most important?

S 61. Are there any groups or interests which are not adequately represented?

S 62. Define what you mean when you use the phrase "the public"?

63. What should be the most important function of a public hearing?

PROBE: What are the most important purposes of a public hearing as it is presently conducted?

PROBE: Would you say that a public hearing is primarily meant to transmit information to the public or from the public?

S 64. In investigating a set of alternative solutions, which agency policy should be adopted? Choose one of the five categories on Card No. 4.

a. No alternatives should be released except the one ultimately proposed by a plan.

b. Only selected alternatives should be released outside of the agency.

c. All alternatives found to be feasible should be made public.

d. Only the feasible alternatives should be made public but all alternatives should be given to Congress.

e. The results of all alternatives which are studied should be made public.

S 65. What is your agency's current policy in releasing alternatives to the public? Choose one of the previous categories.

S 68. Do you think that the general public should be more involved in planning?

Yes _____ How? Why? No_____ Why?

S 69. Should the general public have decision-making power during the planning process?

Yes ______ How? No _______ Why not?

S 70. Do they have any decision-making power now?

Yes ______ How? No _______

S 72. Again using the agree-disagree scale on Card O, would you say that

a. the public is competent to make technical judgements? A a ? d D

b. the public is highly interested in public works? A a ? d D

c. the public is highly cohesive over interests affecting their welfare? A a ? d D

d. the public is easily swayed by emotional nontechnical arguments? A a ? d D

e. the public is generally ignorant of the issues involved in water planning? A a ? d D

f. the public is self seeking? A a ? d D

DECISION-MAKER (FEDERAL)

S 73. What do you think is Congress's motive for their interest in water resource development?

S 74. Should Congress have direct control over water development decisions?

Yes _____ No _____ Don't know _____

PROBE: WHY?

S 75. How much direct control does Congress have over water development decisions?

S 76. Do you think that water resource policy would be improved if the decisions were taken out of the political arena?

Yes _____ No _____ Don't know _____

PROBE: WHY?

S 77. Should your agency have more control than it does now over water development decisions?

Yes _____ No _____ Don't know _____

PROBE: WHY?

S 77a. How much control does the agency have over water development decisions?

PROBE: What type of control do they have now?

77. What is your definition of a pork-barrel project?

78. Your agency is sometimes accused of being a pork-barrel agency.

What is your response to this kind of criticism? (out for FWPCA)

PROBE: Is the percentage of pork-barrel within your agency increasing or decreasing?

PROBE: What are the reasons for this?

79. Does your agency have a responsibility to prevent pork-barrel construction?

PROBE: Can it prevent pork-barrel construction?

PROBE: HOW?

S 80. Please turn to card No. 5. Choosing from the categories on that card.

WHO ULTIMATELY DECIDES:

a. The economic life of a project? ____

b. The type of economic and population projections to use? ____

c. What the water needs of the basin are? ____

d. Which alternatives will be studied? ____

e. What the best plan is? ____

- a. Planner
- b. Your agency
- c. U. S. Congress
- d. General public
- e. State interests
- f. Local interests
- g. Other____________

S 81. Again choosing from card No. 5.

WHO SHOULD DECIDE:

a. **What the water needs of the basin are?** ____

b. **What the goals or objectives of development will be?** ____

c. The relative importance between such goals as economic efficiency and environmental enhancement? ____

d. **Which alternatives will be studied?** ____

e. **What the best plan is?** ____

- **a. Planner**
- **b. Your agency**
- **c. U. S. Congress**
- d. General public
- **e. State interests**
- **f. Local interests**
- **g. Other** ____________

PLANNING PROCESS

82. Are most of your planning efforts similar enough to allow you to apply the same procedures uniformly?

Yes ____ No ____ Don't know ____

83. Have your standard planning procedures changed much over the last five years?

Yes ____ No ____ Don't know ____

PROBE: How have they changed?

84. Has the net result been:

a. To increase the amount of detail necessary in a plan? Yes/No

b. To broaden the coverage of unusual kinds of situations? Yes/No

c. To make the planning job more complex? Yes/No

d. To increase the number of alternatives that you have to study? Yes/No

e. To improve the accuracy of the planning process? Yes/No

f. To produce better planning? Yes/No

85. **Do you have the opportunity to comment on proposed changes in planning procedures?**

Yes____ No____

→Do you think your comments are used?

Yes____ No____

→**PROBE:** In what way?

→Do you think you should have the opportunity?

Yes ____ No ____

→**PROBE:** Why?

86. Would you say that a decision based on a B/C analysis is better than one based on intangible values?

Yes _____ No _____ Don't know _____

PROBE: WHY?

87. Would you say that a B/C decision is easier to defend against criticism?

Yes _____ No _____ Don't know _____

PROBE: WHY?

88. Do you ever encounter the following situation:

a. You are personally convinced that a project is worthwhile, but an economic analysis shows that it is not justifiable?

Yes _____ No _____

PROBE: What do you usually do in this situation?

b. Do you ever encounter this situation:

You are convinced that a project is not desirable, but an economic analysis shows that it is justified?

Yes _____ No _____

PROBE: What do you usually do in this situation?

89. Do you see an increasing trend toward non-structural solutions for your agency's problems?

Yes _____ No _____

90. Do you think that the time spent on planning studies is too short or too long?

Too short / too long / about right

91. Do you think that the planning for survey (feasibility) reports is too detailed or not detailed enough?

Too detailed / not detailed enough / about right

92. What would be the most effective method of shortening the planning process?

PROBE: Give the planner more freedom to make decisions? Yes/No
Improved methods of analysis? Yes/No
Hire more planners? Yes/No
Form project planning teams? Yes/No
Decrease the number of review levels? Yes/No

G 93. A plan is many things to many people. What do you think a plan is?

G 94. What distinguishes a "good" plan from a "bad" plan in your opinion?

95. How often are important considerations left out of your plans?

If not: never

→PROBE: WHY?

95a. What do you feel is the principal constraint on the quality of your agency's current water resource planning?

G 96. How would you improve the present planning process?

PLANNING TECHNIQUES

97. Are the use of most of your analytical techniques spelled out in your planning manuals?

Yes _____ No _____

98. Do you think that the presently available analytical techniques allow you to do an adequate job of planning?

Yes _____ No _____

→PROBE: What are the deficiencies?

99a. What do you see as the main use of benefit/cost analysis?

99b. Would you say that the benefit/cost analysis is most useful in formulating alternatives OR choosing between alternatives?

100a. Which of the following two statements most nearly describes your feelings about water?

a. Water is a commodity which should be treated just as any other marketable good.

b. Water is a unique good with a special value which cannot be measured just in terms of it's price.

100b. Using card O, would you agree or disagree that:

a. Water, as a necessity for life, should be free to all men. A a ? d D
b. Water is a central factor in determining economic growth. A a ? d D
c. The highest use of water is for it to serve the physical needs of man. A a ? d D

101. Define intangible benefits or costs.

PROBE: Give a few examples.

102. What effects do intangible benefits and costs have on an economic analysis?

PROBE: Do they invalidate the conclusions of the B/C analysis? Yes/No

Should they be ignored in favor of direct economic benefits and costs? Yes/No

Should they only be included by decision-makers higher up? Yes/No

Should they be assigned some numbers and lumped into an all-inclusive B/C figure? Yes/No

COMMENT:

104. Do you regard your agency as a slow or fast adopter of new analytical techniques?

Fast/Slow

105. Have you heard about or read about any new analytical techniques that might be used to further improve your planning?

No _____ Yes _____: 1.____________________

2.____________________

PROBE: Would you comment on the usefullness of these techniques?

LEGISLATION

G 107. Has there been any legislation in the past 10 or 20 years that has significantly changed the quality of water resource planning? Describe what it was and it's effect.

PROBE: Which laws were most important?

108. Does existing legislation constrain you or does it free you to pursue desirable planning goals?

109. What kind of legislation would you like to see introduced to further improve the quality of planning?

111. Do you think that your agency's present appropriation is too small or too large?

PROBE: WHY?

112. Do you think that your agency's budget will generally rise or fall in the future?

PROBE: WHY?

113. Have you been able to perceive any difference between the intent of your original legislation and your agency's interpretation of this legislation?

114. Card No. 6 lists a series of possible institutional constraints on the quality of current water resource planning? Rank them in order of importance.

_____ a. Budget constraints - lack of planning funds

_____ b. Budget constraints - lack of construction funds

_____ c. The limited nature of our analytical techniques

_____ d. The law of the land - legal constraints

_____ e. The regulations of the agency

_____ f. Political realities - pressure from interest groups, etc.

AGENCY CONSTRAINTS

116. What would you say is the most important function of the reviewer?

PROBE: Does the function vary with the level of the review?

_____ District or Field

_____ Division or Region

_____ Washington

117. If you were asked to describe your agency's method for making planning decisions in one sentence, which of the following two would you choose?

a. The authority has been decentralized by assigning most of it to the district or field offices.

b. The district offices do the detail work, but the authority is firmly centralized in Washington (Denver).

118. In your opinion, which of the two methods leads to better planning?

a. / b.

119. What would be the good and bad aspects of centralizing the district planning activities at the division (regional) or Washington (Denver) office?

PROBE: Good: Bad:

120. Is there really a sense of rivalry between water resource agencies?

Yes ____ No ____

PROBE: Do you think that competition between agencies provides the incentive to do better planning?

121. Some critics have accused your agency of using the so-called "cook-book" approach to planning instead of treating each situation as a separate problem with its own particular characteristics. Do you think this criticism is justified?

122. Some critics have accused your agency of using "tunnel-vision", that is, you only look at solutions which will benefit your own (construction) program. Do you think this criticims is justified?

123. Do you think that the quality of planning would be improved if the planning function were separated from design and construction?

Yes ____ No ____ Don't know ____

PROBE: WHY?

GOALS

G 124. Is your agency's planning directed by a set of long range goals?

Yes ____ No ____ Don't know ____

G 125. Would you describe these goals?

G 126. Card No. 7 contains a general list of possible broad economic goals to be sought in water resource planning. Choose the three that you consider most important and rank them. Add any you feel are omitted.

a. Maximize national economic growth
b. Maximize regional economic growth
c. Maximize local economic growth
d. Maintain the resource base (recycle resources).
e. Redistribute income from rich to poor
f. Promote national defense
g. Control the growth of regions
h. Other

G 127. Card No. 8 contains a general list of possible broad environmental goals to be sought in water planning. Choose three and rank.

a. Enhance and improve the environment
b. Enhance fish and wildlife
c. Control population growth
d. Ensure ecological principles are satisfied
e. Preserve unique natural areas
f. Preserve historical sites
g. Supply recreational opportunities for the public
h. Other

G 128. From the six goals you chose on cards 7 and 8, pick the three you feel are most important and rank them.

1. ______________________________

2. ______________________________

3. ______________________________

G 129. What goals do you feel are overemphasized or not being met at the present time?

Overemphasized: Not being met.

G 130. With respect to the formulation of goals such as those above, how do you believe they are arrived at?

G 131. Do you prefer to work under a set of specified goals or would you rather have the freedom to respond to needs as they arise?

Goals _____ **Needs** _____

PROBE: WHY?

G 132. Do regional and local objectives affect your planning?

Yes ____ No ____

PROBE: What are they?

PROBE: Are they important?

PROBE: How do you resolve conflict?

106a. **What is gained and lost by the increased emphasis on multiple objectives as opposed to just planning for economic efficiency?**

Gained Lost

b. What is/opinion about the use of large scale interbasin water transfers?
your

G 133. In Senate Document 97, a general goal states that overriding all other objectives must be considerations protecting "the well being of the people" or "the common good". What do you think these terms mean?

G 134. Another important aspect of goals is what you feel the objectives of the planning process are. Card No. 9 lists a series of possible planning objectives. Choose the three that best describe the purpose of your planning:

a. To prepare a document describing project alternatives or non-structural procedures.

b. To provide a basis for meeting future water needs.

c. To meet your agency's responsibility to the public.

d. To provide a standard which measures progress toward water resource goals.

e. To show a way to achieve socially useful results.

f. To assist the agency to better anticipate change.

g. To show means available to achieve economically useful results.

h. To illuminate alternative futures.

i. Other ______________________

TIME

T 135. How would you rate your outlook on the future of mankind?

T 136. What are your major reasons for this outlook?

T 137. Would you say that the U.S. has sufficient natural resources to fulfill its needs for the forseeable future?

T 138. Do you believe that the U.S. is presently a water-short nation?

Yes ____ No ____ Don't know ____

Comment:

T 139. How about in the future?

Comment:

T 140. How far into the future can we reliably predict?

a. Population: ____ years

b. Water needs: ____ years

c. Economic growth: ____ years

d. Social change: ____ years

T 141. How urgent are the regular programs of your agency?

T 142. Do you believe that it is important to build projects now which have capacities far beyond the requirements for existing needs?

Yes _____ No _____ Don't know _____

PROBE: WHY?

T 143a. As a planner, would you say you are more influenced by the needs of the future, or by the way things have been done in the past?

b. Along the scale on card No. 10, where would you say your personal or private concern is directed?

Distant/	Past/	Recent/	Present/	Near /	Future/	Distant
Past		Past		Future		Future

P 144. Do you feel any conflicts between the way you like to do your job and the way you have to do it?

Yes _____ No _____

→**PROBE.** What are these conflicts?

→**PROBE:** How do you resolve these conflicts?

P 145. How would you describe your personal planning philosophy?

P 146. According to the categories on card No. 11, rate yourself on your general planning philosophy.

Radical/ Liberal/ Moderate/ Conservative/ Very Conservative

P 147. How do you rate yourself compared to the other planners in your office on that scale?

DEMOGRAPHICS

Age: _____ Marital Status: ______________

GS grade _________ Time in grade ______________

Official job title: ____________________________________

Years with agency _________________ Years as a planner __________

Years with Federal government _______ Non-Federal Engineering employment _________

Other Federal agency _________ Non Federal employment __________

____

____

____

Education:	Degree	Major	Minor	University
a. Undergraduate				
b. Graduate				
c. Post-university				

Background:

Where were you born and raised? ______________________________

Would you classify that as urban or rural? ____________________

Father's occupation ____________________________________

Membership in professional groups:	Membership in Clubs, organizations:

Do you participate in any water-related hobbies or sports?

APPENDIX 5

"Ideal Planner" Scale

INSTRUCTIONS

Most of us have some idea of what the "ideal" characteristics of a water resources planner should be. With a picture of the "ideal" planner firmly in mind, go through the following list of opposite attributes and indicate your preference as shown in the example below:

Example

The ideal planner is a planner:

-with many years of experience	1	2	3	4	5	with many years of advanced education

Explanation

A mark, or "X", in position 1 indicates that you would *always* prefer the experienced planner. A mark in position 2 means that you prefer the experienced planner but also value an advanced education as a secondary quality. Position 3 is complete neutrality between the two attributes. Positions 4 and 5 both favor the planner with the advanced education, with position 4 indicating that education is more important than experience, and 5 indicating that education is *very much* more important as an ideal planner characteristic.

QUESTIONNAIRE

AN IDEAL PLANNER IS A PLANNER:

1. with many years of planning experience	___ ___ ___ ___ ___	with many years of advanced education

AN IDEAL PLANNER IS A PLANNER WHO:

2. follows the chain of command	___ ___ ___ ___ ___	is highly independent
3. is an innovator	___ ___ ___ ___ ___	follows tried and time proven planning methods
4. is satisfied with his present position	___ ___ ___ ___ ___	constantly seeks promotion

AN IDEAL PLANNER PREFERS THAT THE FINAL CHOICE OF DEVELOPMENT ALTERNATIVE IS MADE BY:

5. expert planner/ agency	___ ___ ___ ___ ___	general public (taxpayer)
6. Congress	___ ___ ___ ___ ___	expert planner/agency
7. general public	___ ___ ___ ___ ___	Congress

AN IDEAL PLANNER IS A PLANNER WHO IS:

8. a generalist (has some knowledge of many disciplines)	___ ___ ___ ___ ___	a specialist (has high knowledge of one planning discipline)
9. emotionally involved with his planning	___ ___ ___ ___ ___	objective or neutral about his planning

AN IDEAL PLANNER IS A PLANNER WHO IS:

10. a realist	___ ___ ___ ___ ___	an idealist
11. pro-preservation	___ ___ ___ ___ ___	pro-development
12. optimistic about the future	___ ___ ___ ___ ___	pessimistic about the future

AN IDEAL PLANNER IS A PLANNER WHO:

13. advocates a plan (argues in its favor)	___ ___ ___ ___ ___	presents the plan (neutral stance)
14. works carefully within the agency's lawful functions	___ ___ ___ ___ ___	seeks opportunities to promote a broader range of development benefits
15. insists quantifiable criteria is most important	___ ___ ___ ___ ___	insists non-quantifiable criteria is most important
16. always accepts agency policies and regulations	___ ___ ___ ___ ___	always rejects agency policies and regulations
17. seeks out dissenting opinion	___ ___ ___ ___ ___	avoids controversy
18. assess all possible consequences of a proposed plan	___ ___ ___ ___ ___	gets the job done

AN IDEAL PLANNER IS MORE CONCERNED ABOUT:

19. long-range planning	___ ___ ___ ___ ___	project development
20. the agency mission	___ ___ ___ ___ ___	public coordination
21. existing problems	___ ___ ___ ___ ___	distant future problems
22. public service	___ ___ ___ ___ ___	agency loyalty

AN IDEAL PLANNER PREFERS TO PLAN FOR:

23. economic growth	___ ___ ___ ___ ___	social considerations
24. environmental enhancement	___ ___ ___ ___ ___	economic growth
25. social considerations	___ ___ ___ ___ ___	environmental enhancement

AN IDEAL PLANNER IS A PLANNER WHO:

26. has a strictly national orientation	___ ___ ___ ___ ___	has a strictly local orientation
27. seeks a policy input opportunity	___ ___ ___ ___ ___	seeks complete direction from the top

To use these scales, a large number of planners must be sampled, from different state and federal agencies, grades, age groups, backgrounds, the universities, and so on. A series of norms of attitudes for the various groups can be established. Other planners could then be assessed with respect to these norms to indicate their potential responsiveness in particular situations.

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